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SUPERSONIC AERODYNAMIC HEATING OF A YAWED SPHERE-CONE WIND-TUNNEL MODEL (U)

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U. S. NAVAL ORDNANCE LABORATORY

WHITE OAK, MARYLAND

NAVORD Report 6812

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SUPERSONIC AERODYNAMIC HEATING OF A YAWED SPHERE-CONE WIND-TUNNEL MODEL

Prepared by:

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ABSTRACT: The steady-state pressure and heat-transfer distributions on a sphere-cone configuration with laminar boundary layer have been determined in a wind tunnel at yaw angles, 0° and 6°, and at nominal Mach numbers, 3 and 5. Comparison of the 0° yaw local heat-transfer rates with those of the windward body streamline at 6° yaw show a maximum increase for corresponding body stations of approximately 100 percent. The 0° yaw heat-transfer results show good agreement with the recent theory of Powers and Krahn.

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Presented in this report are the results of an experimental investigation of the heat transfer to a sphere-cone model at 0° and 6° yaw in supersonic flow obtained in the NOL Supersonic Tunnel No. 2 during the calendar years 1957 and 1958. The bulk of the data has been reported previously in periodic Progress Reports.

This investigation was sponsored by the Army Ballistic Missile Agency under Task Number NOL-300.

The authors wish to specifically recognize the material contributions made by the following individuals to the successful conclusion of this investigation: Mr. J. Iandolo, for the mechanical design of the model and the roll support device; Mr. H. McDonald, for his conception and use of original manufacturing procedures during the model construction; Mr. R. Sullivan, for his excellent instrumentation of the model; Dr. W. Menzel, for providing the special analog to digital data handling system; Mr. W. Glowacki, for smoothing the angle of yaw data on the IBM 653; and Mr. T. Orlow, for solving the Fourier Heat Equation in three dimensions on the IBM 704.

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Captain, USN
Commander

R. KENNETH LOBB
By direction

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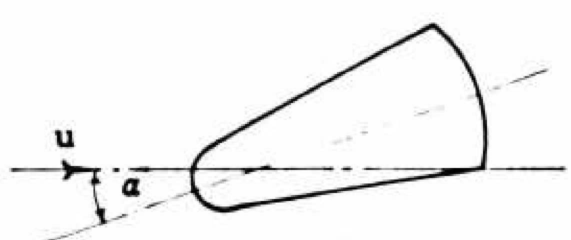
SYMBOLS

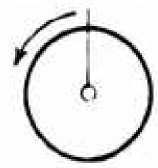
h	-	heat-transfer coefficient
ℓ	-	a characteristic length
M	-	Mach number
Nu	-	Nusselt number
$Nu/\sqrt{Re}$	-	dimensionless heat-transfer parameter = $\frac{h\ell}{k}\sqrt{\frac{\mu}{\rho}\frac{(\partial u/\partial S)_{S=0}}{\ell^2}}$
p	-	local static pressure
P	-	total pressure
P'_o	-	Pitot pressure
Q	-	local heat flux
Q'_o	-	stagnation point heat flux
R	-	radius of the base of the model = 4.017 inches
Re	-	Reynolds number
S	-	model contour length measured from the point of intersection of the spherical nose and the axis of symmetry. This point corresponds to the aerodynamic stagnation point at $\alpha = 0^o$
S'	-	model contour length measured from the aerodynamic stagnation point
T	-	temperature ^oK
u	-	velocity
α	-	angle of yaw in degrees



Positive α

β = roll angle in degrees (β = 0^{o} is windward and β = 180^{o} is leeward)

Positive β



Flow directed into the paper

ΔT = difference between calculated and measured temperatures

θ = angular distance on spherical nose measured from the axis of symmetry

μ = viscosity

ρ = density

$\partial T/\partial \beta$ = rate of change of temperature with roll angle

$\partial u/\partial S$ = local velocity gradient outside the boundary layer

Subscripts

o = supply conditions

1 = conditions upstream of shock wave

c = calculated values

e = adiabatic wall conditions

m = measured values

w = wall conditions

INTRODUCTION

1. Challenging problems stem from the severe thermal environment to which re-entry vehicles are subjected. Since the aerodynamic heating, caused by fluid friction, is one of the principal considerations in the design of re-entry vehicles, great effort has been devoted to the study of these heating effects. For several years, the blunting of noses of re-entry vehicles has been used as a means of alleviating the attendant aerodynamic heating. Since theory does not predict adequately the heat transfer to blunt bodies at angle of yaw, experimental data are needed. The purpose of this report is to present local heat-transfer measurements along a sphere-cone configuration with laminar boundary layer at nominal Mach numbers of 3 and 5, including the effects of yaw.

MODEL, EQUIPMENT, AND TEST FACILITIES

2. Prior to embarking on this investigation, much thought was given to the choice of an experimental technique. After lengthy consideration, a steady-state technique was chosen, as opposed to a transient technique. Some of the factors which prompted this decision are enumerated hereafter.

a. There is ample time available to make careful measurements.

b. A range of model coolant temperature to tunnel stagnation temperature ratios can be obtained easily and can be repeated.

c. The steady-state models are more difficult to build and instrument than are the transient models. However, this additional effort is more than compensated for by the relative ease of data reduction.

d. The transient models are fragile as compared to the steady-state models.

e. The presence of the thermojunction does not alter the temperature field of the model wall nearly so much in the steady-state case as in the transient case.

f. Regardless of the magnitude of the heat-transfer rate, the data may be obtained in digital form in the steady-state case. Such data may be completely reduced by high-speed computing machines. High heat-transfer rates imply rapid

response time in the transient case. Most digital data handling systems are not fast enough to be used in obtaining rapidly changing transient data. Consequently, analogue recorders, with their inherent time-response difficulties, are generally used in this application. In any event, the transient technique requires the determination of the slope of an experimentally determined curve. Such slopes are difficult to determine with any degree of precision.

g. There are no physical assumptions made in solving the steady-state conduction problem. For solving the transient problem, the assumption is made that the body is isothermal at time zero which is difficult to achieve experimentally for the angle-of-yaw case. Admittedly, the transient data may be corrected for conduction other than that normal to the body. However, the corrections sometimes exceed in magnitude the value of the desired quantity. Such a situation is most undesirable, for obvious reasons.

h. In summary, it appears that the steady-state technique yields very precise results. The outstanding attributes of the transient technique are the simplicity of model design and instrumentation and the rapidity with which data may be obtained. If extreme precision is not required, the use of the steady-state technique is not justified because of the greater expense and time requirements.

3. The axisymmetric sphere-cone configuration (Figures 1 and 2) was constructed of type 347 stainless steel. Reduction of the data obtained from this model was somewhat simplified because the thermal conductivity of the steel varies linearly with temperature over the entire range considered during this investigation. Further, the coefficient of thermal conductivity is small, insuring a sufficiently large temperature difference ($\Delta T \geq 1^{o}K$) across the model wall. Determination of the thermal conductivity as a function of temperature of the stainless steel used in the fabrication of the model was made by the National Bureau of Standards; the method and results are presented in reference (a). The sphere-cone model had a half-cone angle of 13°20', a one-half inch wall thickness, a base diameter of 8.034 inches, a carefully machined shape, and a fine surface finish. It was instrumented with 64 thermojunctions along a meridian line (body streamline) on both the inside and outside walls. Table I lists these locations. Each of the thermojunctions were formed by welding a 0.005-inch diameter constantan wire onto the model surface. The stainless steel of the model then

formed one side of all the thermojunctions. Three precisely machined stainless steel plugs, each instrumented with five thermojunctions, equally spaced, were placed into holes provided for them in the model wall. Plugs were located at the base of the cone, at the tangency point of the cone and sphere, and midway between the model stagnation point and the tangency point. Each of the model thermocouples was calibrated over the desired temperature range. Standard copper-constantan thermocouples, which had been calibrated for NOL by the National Bureau of Standards, were used as the reference. The entire model calibration was conducted in a large temperature controlled bath of silicone oil. Results of the calibration are presented in Figure 3. The model was also instrumented with eleven pressure orifices 0.025 inches in diameter, the locations of which are listed in Table II.

4. Figure 4 is a photograph of the disassembled model, sting, and sector. When assembled, the inner body was inserted into the nose of the model. The function of the inner body was to distribute coolant fluid onto the inside surface of the model in an attempt to achieve an isothermal outer wall. Figure 5 is a schematic diagram of the setup of the experiment. In addition to upstream and downstream movements, the sting and sector support system allowed the yaw and roll angle to be controlled and determined from outside the tunnel while the tunnel was in operation. The model was cooled internally by flowing DC 200 silicone oil through the sting and model at approximately fifty gallons per minute. The oil was cooled in a heat exchanger designed to maintain the coolant at 215°K. A mixture of solid carbon dioxide and alcohol was used to achieve this temperature.

5. The investigation was carried out in the NOL Supersonic Tunnel No. 2 which is described in reference (b). The nominal operating conditions were:

M_1	P_o mm Hg abs.	T_o °K	Re_1/meter
3.24	1214	335	9.0×10^6
4.84	2220	320	8.5×10^6

$\left(\frac{V \rho}{\mu} \right)$

6. Since the phenomenon under investigation was steady-state heat conduction, the tunnel supply conditions and the temperature difference through the model wall had to be maintained constant with time. Both temperature and pressure distributions on the model were measured concurrently to eliminate any error introduced by small non-steady-state conditions.

7. The pressure measurements were made on the sphere and cone of the model using Kendall precision mercury and oil manometers (reference (c)). The local flow conditions along the outer edge of the boundary layer were calculated, using the flow tables of reference (d), from the pressure distributions with the assumption of an isentropic flow from the model stagnation point.

8. Temperatures were measured both on the inner and outer surfaces of the sphere, cone, and base of the model using the analog to digital converters, PADRE (reference (e)), and SADIC (reference (f)). The temperature measuring system was accurate to $\pm$ 0.03°C. In addition to the wall surface measurements, temperatures were read through the model wall at the three plug locations. At 6° yaw angle, the model was rolled 180° in 15° increments and measurements were taken at each roll increment. Unfortunately, the tunnel supply temperature and model coolant temperature could not be kept absolutely constant for the eight to ten hours required to complete the measurements at all the roll angles. In order to normalize the data with respect to the tunnel supply temperature and model coolant temperature, two requirements had to be fulfilled. First, essentially steady-state conditions must prevail while the measurements for one roll angle are being made. Second, the difference between the tunnel supply temperature and the model coolant temperature must not vary more than 1.0 or 1.5 percent during the time required to make the measurements at all of the roll angles. Both the Mach 3.24 and 4.84 data met the first requirement. However, the Mach 3.24 case did not meet the second requirement. Unfortunately, the difference between tunnel supply temperature and model coolant temperature varied as much as 4 percent, a fact which made it impractical to normalize the data. However, it must be emphasized that the Mach 3.24 data did meet requirement one, namely, that essentially steady-state conditions did prevail while measurements of each individual roll angle were being made.

9. The procedure used for normalizing and smoothing the M_1 = 4.84 data is described in Appendix A. It resulted in a smoothed temperature distribution having a maximum deviation of the order of 1 percent from any of the experimental values. The steady-state heat flux was then calculated on an IBM 704 using the Liebmann method for solving the partial differential equations associated with the problem of steady-state heat conduction in shells composed of a spherical nose on a conical body. This is discussed quite thoroughly in reference (g).

RESULTS AND DISCUSSIONS

Pressure-Distribution Data

10. The pressure distribution over the sphere-cone model at $M_1 = 3.24$ and zero yaw is presented in Figure 6. For comparison, a Newtonian distribution has been included. The experimental points agree quite favorably with the Newtonian distribution both on the spherical and conical portions of the body.

11. Figure 7 presents the pressure distribution over the sphere-cone model at $M_1 = 4.84$ and zero yaw. In addition to the Newtonian curve, experimental data at $M_1 = 5.4$ (reference (h)) has been included for comparisons. The experimental results from both investigations agree quite well with the Newtonian distribution on the sphere except at the point of tangency where they depart abruptly. On the cone the experimental data agree fairly well with the Newtonian calculations.

12. Figures 8 and 9 show the 6° yaw pressure distributions at $M_1 = 3.24$ and $M_1 = 4.84$, respectively. The data were measured over a roll angle range of 0° to 180°. A casual comparison of the experimental data with the theoretical curves indicates that the agreement is good. However, the Newtonian distributions calculated for $\beta = 0^{\circ}$ and $\beta = 180^{\circ}$ are up to 16 percent higher than the experimental points on the spherical portion of the body. Further, the experimental data deviate from the Newtonian in the region of the tangency point, then approach the Newtonian prediction on the cone.

13. Tables III and IV are tabulations of the pressure ratio (p/P_o') for each measuring station at $M_1 = 3.24$ and $M_1 = 4.84$, respectively. Both tabulations present data at 0° and 6° yaw. The angle-of-yaw data include measurements at roll angles from 0° to 180° in 15° intervals.

Temperature-Distribution Data

14. Typical zero yaw-temperature distributions at $M_1 = 3.24$ and $M_1 = 4.84$ are presented in Figures 10 and 11, respectively. These plots are representative of the zero-yaw data included in Tables V and VI and of the type of temperature distributions obtained on the sphere-cone model. These data, as well as other sets of the tabulated data, were used to calculate the heat flux to the sphere-cone body. It should be pointed out that none of the experimental results presented in this report are an average. Each distribution represents data from one wind-tunnel run.

15. Table V presents 0° and 6° yaw temperature measurements at $M_1 = 3.24$. Only the experimentally determined temperatures have been tabulated for this Mach number since, as previously pointed out in Paragraph 3, it was not feasible to normalize the angle-of-yaw data. The table includes outside surface temperatures, plug temperatures, inside surface temperatures, S/R, yaw angle, and roll angle.

16. Temperatures at $M_1 = 4.84$ are presented in Table VI. Along with 0° yaw data, temperatures at 6° yaw and 0° to 180° roll are tabulated. Included in the tabulation of the 6° yaw data are the following quantities; S/R, calculated and measured outside, inside, and plug temperatures, and ΔT (difference between smoothed and measured temperatures).

Heat-Transfer Data

17. Figure 12 presents the heat-flux distribution at $M_1 = 3.24$. The local heat-flux Q has been made dimensionless with respect to Q_o', the heat flux at the model aerodynamic stagnation point. It is interesting to note that the heat flux reaches a maximum at S/R = 0.0818. Local maxima are also evident along the downstream portion of the conical body. There is presently no suitable explanation for the presence of these maxima. The phenomenon of the maximum heat transfer occurring away from the aerodynamic stagnation point was also detected at $M_1 = 4.84$ and is presented in Figure 13. Similar observations have been reported by a number of people. Winkler and Danberg (reference (i)) measured the phenomenon at S/R = 0.0975, while Stine and Wanlass (reference (j)), Cresci and MacKenzie (reference (k)), and Crawford and McCauley (reference (l)) measured it at S/R $\cong$ 0.2, 0.2, and 0.03, respectively. Only one of the above mentioned references discusses the phenomenon at all. Winkler and Danberg state that at S/R = 0.0975 the temperature difference $(T_e - T_w)$ is a maximum causing maximum heating in that region. Kuethe, et al., in reference (m), have made hot-wire measurements in the stagnation point region of blunt bodies in supersonic flow. These measurements indicate that the stagnation point moves around in a random fashion which is somewhat analogous to the phenomenon reported herein.

18. Both Figures 12 and 13 include base heat-transfer data. Several assumptions were necessary in order to determine the local heat flux from the temperature-distribution data. The afterbody was assumed to be a spherical section of uniform wall thickness. This is the "so-called" "assumed afterbody" of Figure 1. The actual afterbody is a spherical section,

but does not have constant wall thickness. The IBM machine program for determining the local heat-flux ratios from a solution of the Fourier equation for steady-state conduction was restricted to a spherical section of constant wall thickness. Further, the extrapolated temperature distribution through the wall was obtained by assuming that the isotherms in the downstream portion of the conical forebody were parallel to the inner and outer walls. That section of the afterbody occupied by the sting was assumed to be at the temperature of the model coolant. Consequently, the subject base heat-transfer data should be viewed with caution because of the assumptions made and because the effectively large diameter sting undoubtedtly affected the wake flow and altered its characteristics.

19. Experimental zero yaw heat-transfer data are compared (Figures 14 and 15) with the values obtained using the theory of Powers and Krahn, which was developed primarily for high-temperature laminar flows (reference (n)). The theory determines the heat transfer associated with a laminar boundary layer by the simultaneous solution of the momentum and energy integral equations using a two boundary-layer thickness approach (i.e., thermal and viscous). For the specific results shown herein, the thermodynamic and transport properties incorporated in the procedure were represented by curve fits to data presented in NBS Circular 564 (reference (o)). The heat-transfer data are presented in the form of absolute heat flux, and the theoretical curve agrees quite well with the experimental results except in the stagnation point region where the deviation is up to 20 percent. At $M_1 = 3.24$ (Figure 14), the theoretical and experimental values agree from $S/R = 0.1358$ to the base of the model; while the $M_1 = 4.84$ case (Figure 15) does not show agreement until an S/R value of 0.3054. The agreement in the stagnation point region could be greatly improved by a better determination of $(\partial u/\partial \beta)_{S=0}$ (the dimensionless velocity gradient at the model stagnation point). Since the heat transfer is dependent on $(\partial u/\partial S)_{S=0}$, accurate velocity measurements are needed for good stagnation point agreement. This is demonstrated by the fact that away from the stagnation point, where the percentage of error in velocity measurements is lower because of increased local velocity, the theoretical and experimental results agree quite well.

20. Figure 16 compares two sets of experimental data and the theoretical curve of Powers and Krahn. The heat-transfer data is presented as the dimensionless heat-transfer coefficient

$(Nu/\sqrt{Re})$. The model used to measure the data presented in reference (p) is similar to the sphere-cone model used in the present investigation. It consisted of a one-inch diameter spherical nose, a cone half angle of 20 degrees, a base diameter of 3.75 inches, and a wall thickness of 0.050 inches. The heat transfer was determined by the transient technique. Both sets of experimental data show excellent agreement with each other and with the theoretical curve, except in the region of the stagnation point. This again brings up the problem of measuring the velocity gradient $\left(\frac{\partial u}{\partial S}\right)_{S=0}$ accurately, because it appears in the $\sqrt{Re}$ term as well as in the theory.

21. The outside surface temperature distributions at 6^o yaw and 0^o to 180^o roll are presented in Figure 17. These data have been normalized and were used to calculate the local heat-flux distribution. The procedure used to normalize the data is described in Appendix A. Only the results at $M_1 = 4.84$ are presented because the $M_1 = 3.24$ data could not be normalized (see Paragraph 8). However, steady-state conditions did exist for the measurements made at $M_1 = 3.24$ for each β position.

22. Figure 18 presents the local heat-flux distribution over the sphere-cone model at 6^o yaw and 0^o to 180^o roll. These data are compiled in Table VIII. The local heat-flux ratio at 6^o yaw shows the same trend as the 0^o yaw distribution; however, the effect of yaw is clearly shown. The Q/Q_o' decreases fairly uniformly as the measuring station moves from windward to leeward (from $\beta = 0^o$ to 180^o).

23. Figure 19 compares the 0^o yaw data with the data for 6^o yaw in terms of $Nu/\sqrt{Re}$. The effect of yaw is most pronounced on the conical portion of the body. On the windward streamline there is a maximum increase of approximately 100 percent as compared to the $\alpha = 0^o$ data in the local heating rate. The zero-yaw data nearly coincide with that for $\alpha = 6^o$, $\beta = 90^o$ which substantiates the results of reference (p), namely, that there is neglible angle-of-attack effect on the heat transfer in the $\beta = 90^o$ plane for small α's.

24. The angle-of-yaw data of the present investigation are compared with those of reference (p) in Figure 20. The data of reference (p) were obtained with a slightly different model configuration (see Paragraph 20) at $\alpha = 5^o$ and $M_1 = 6.0$ as compared to $\alpha = 6^o$ and $M_1 = 4.8$ for the present investigation.

These things being considered, the results are in substantial agreement.

CONCLUDING REMARKS

25. Pressure and heat-transfer distributions were obtained on a sphere-cone configuration at Mach numbers of 3.24 and 4.84 at $\alpha = 0^{\circ}$ and 6°. From this investigation, the following conclusions may be drawn.

a. The method presented herein to determine the heat transfer to a body at angle of yaw yielded very good results over the range of parameters considered for this investigation. Consistent and reliable results are obtained because the present method eliminates several of the troublesome inherent difficulties of the transient type methods, namely, the assumptions of only normal heat flow and infinitely fast temperature recorder response as well as the troubles associated with the determination of slopes of experimental data curves.

b. The newly developed theory of Powers and Krahn can be used to predict heat transfer to blunt bodies if one has an accurate determination of the velocity gradient.

c. The existence of maximum heat flux in a region away from the stagnation point has been detected and should not be ignored. Further investigation of this phenomenon, in view of these results, is certainly warranted.

d. The small angle of yaw considered, 6°, resulted in an increase of approximately 100 percent in the local heat-transfer rate on the windward streamline on the cone as compared to the zero-yaw case.

e. The pressure distribution along the sphere-cone model at zero angle of yaw can be adequately predicted by the Newtonian method. However, this same method yields results as much as 16 percent higher than experiment on the spherical portion of the body at 6° angle of yaw.

f. Both the pressure-distribution data and the heat-transfer data are in substantial agreement with other experimental results.

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APPENDIX A

Data Normalization

1. The procedure used for normalizing is as follows:

   a. A plot of inside and outside wall temperature versus roll angle was made for each thermojunction location.

   b. These data were fitted with various curves, i.e., straight line, cubic, etc.

After inspection of these fits, it was decided to use a least square straight line to the test data for roll angles from 15° to 165°, i.e., to all data except the end points 0° and 180°. The $\beta = 0^\circ$ and 180° data were omitted from the least squares straight line computation because, with the assumption of axisymmetric heat flow, the slope of the T_w versus β curve must equal zero at $\beta = 0^\circ$ and 180°. To achieve this rounding off, the values of T_w at $\beta = 0^\circ$ and 180° were assumed to be equal to those computed for $\beta = 5^\circ$ and 175° from the least squares straight line fit. The temperatures for $\beta = 90^\circ$ obtained from the straight line fits were plotted as T versus S/R. After careful inspection, these temperatures were shifted up or down the minimum amount necessary to achieve a smooth curve. The corresponding $\beta = 0^\circ$ and 180° data were shifted exactly as were the $\beta = 90^\circ$ data. Then the shifted $\beta = 0^\circ$ and 180° data were also plotted as T versus S/R. Further, a plot was made of the straight line slopes versus S/R. By inspection of these three plots, the $\beta = 0^\circ$ and 180° data and the straight line slopes, all versus S/R, a minimum change was made in the appropriate slopes in order to achieve a smooth curve. This smooth curve provided all the information necessary for obtaining the smoothed temperature data used in the heat-transfer determination.

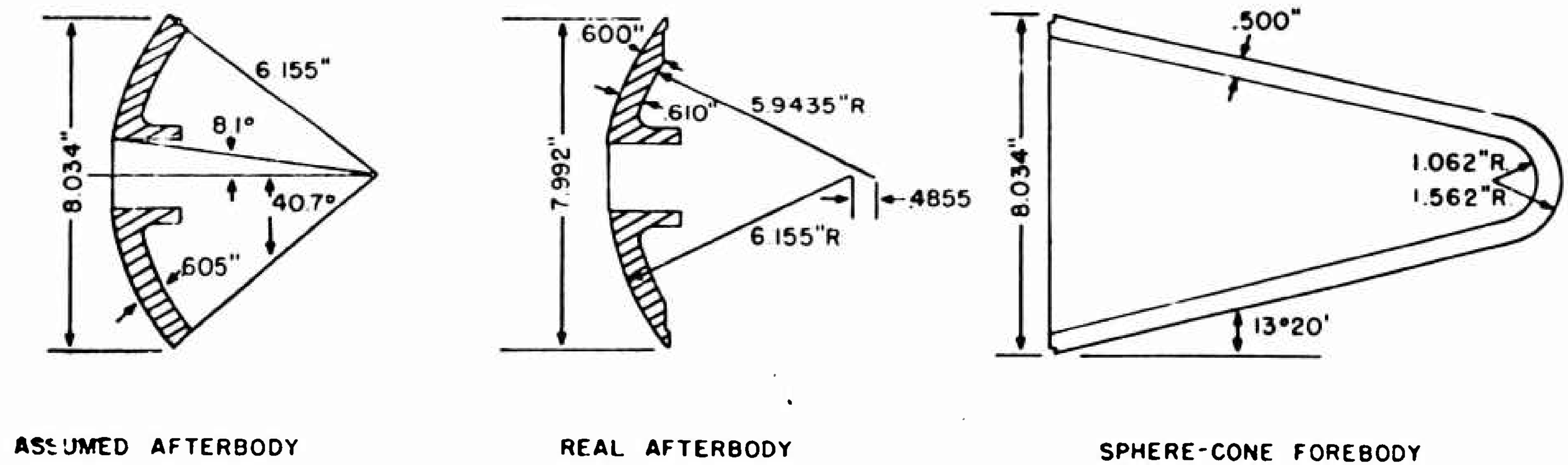

FIG. 1 DRAWING OF THE SPHERE-CONE MODEL

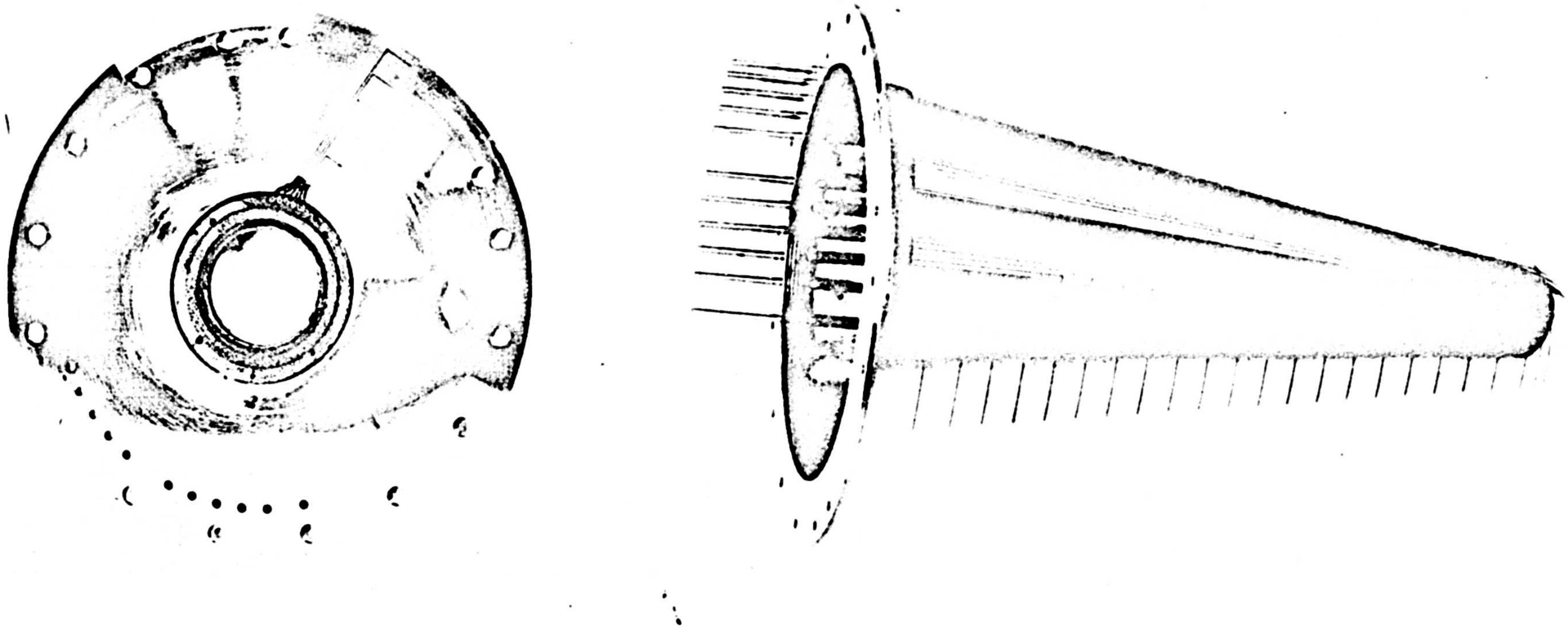

FIG. 2 PHOTOGRAPH OF THE SPHERE-CONE CONFIGURATION

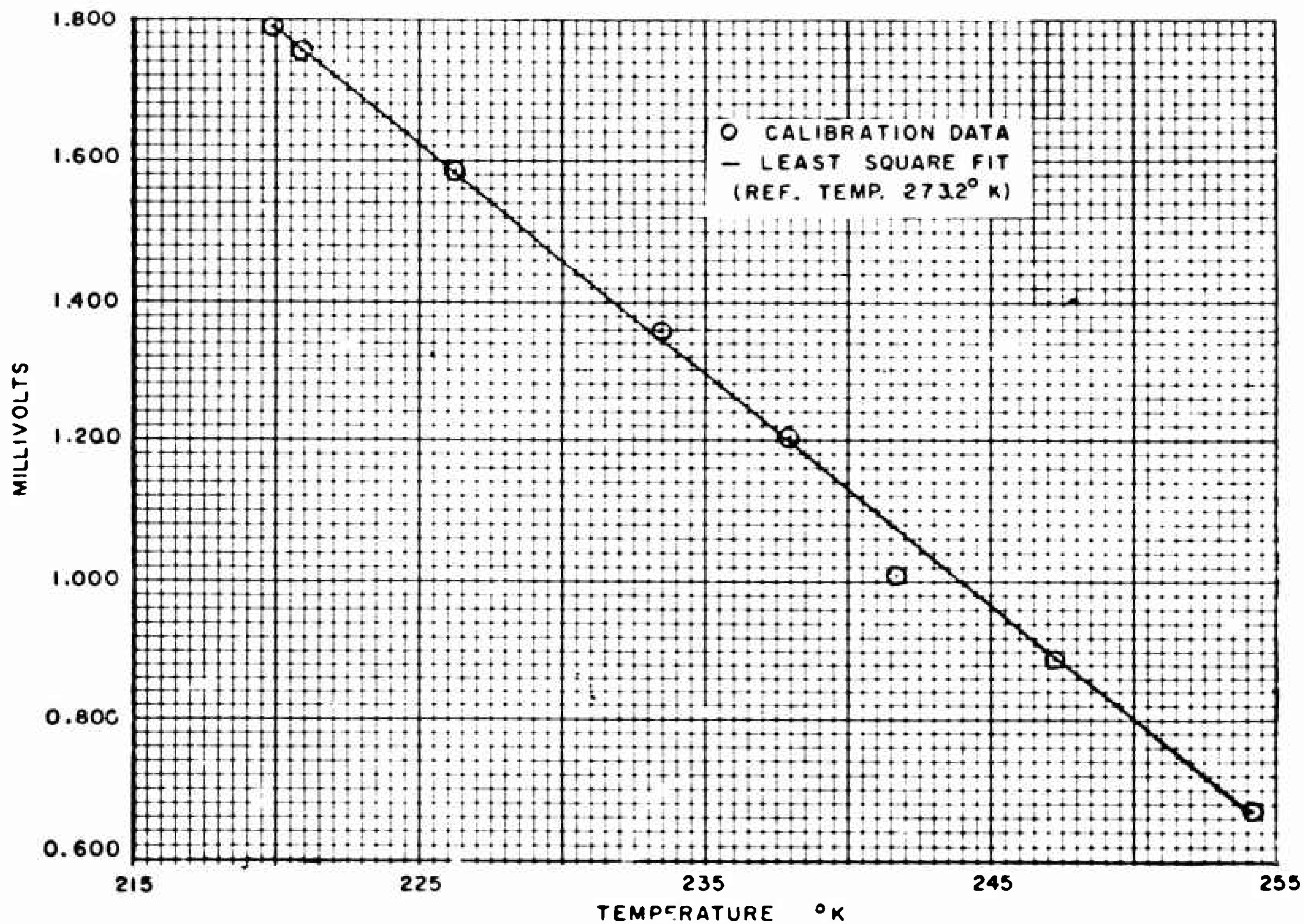

FIG. 3 CALIBRATION OF STAINLESS STEEL TYPE 347 CONSTANTAN THERMOCOUPLES

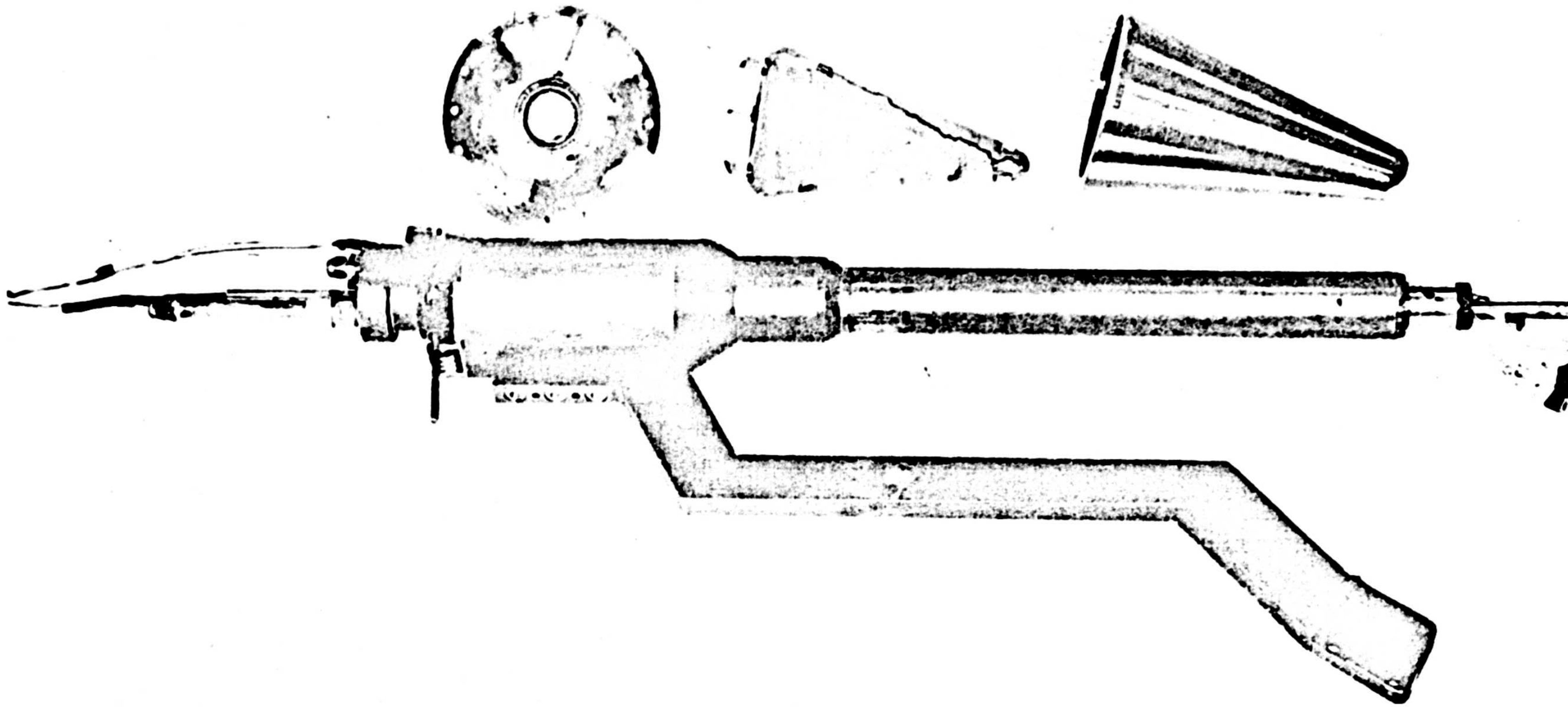

FIG. 4 PHOTOGRAPH OF THE DISASSEMBLED SPHERE-CONE CONFIGURATION, STING, AND SECTOR

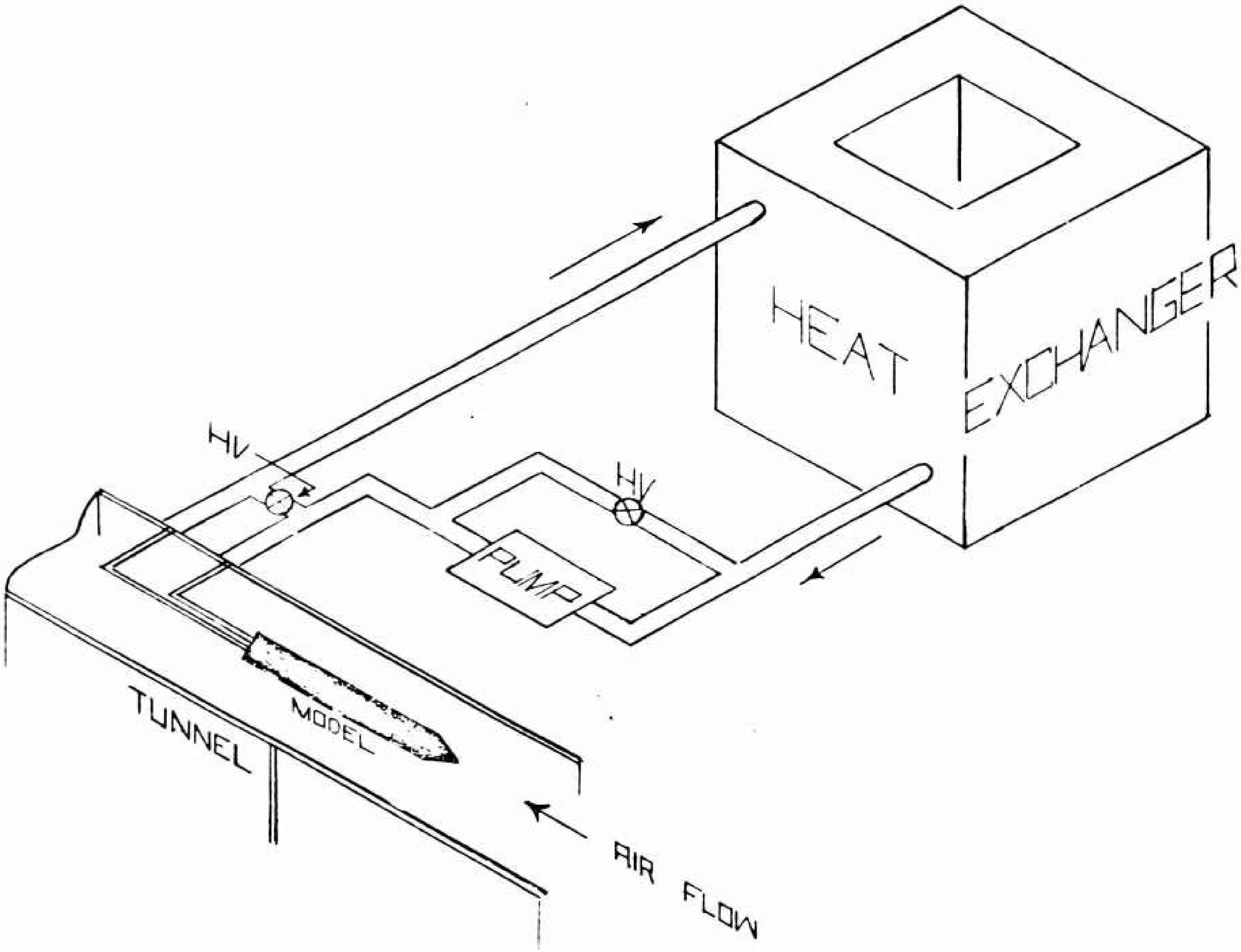

FIG. 5 SCHEMATIC DIAGRAM OF THE SET-UP OF THE EXPERIMENT

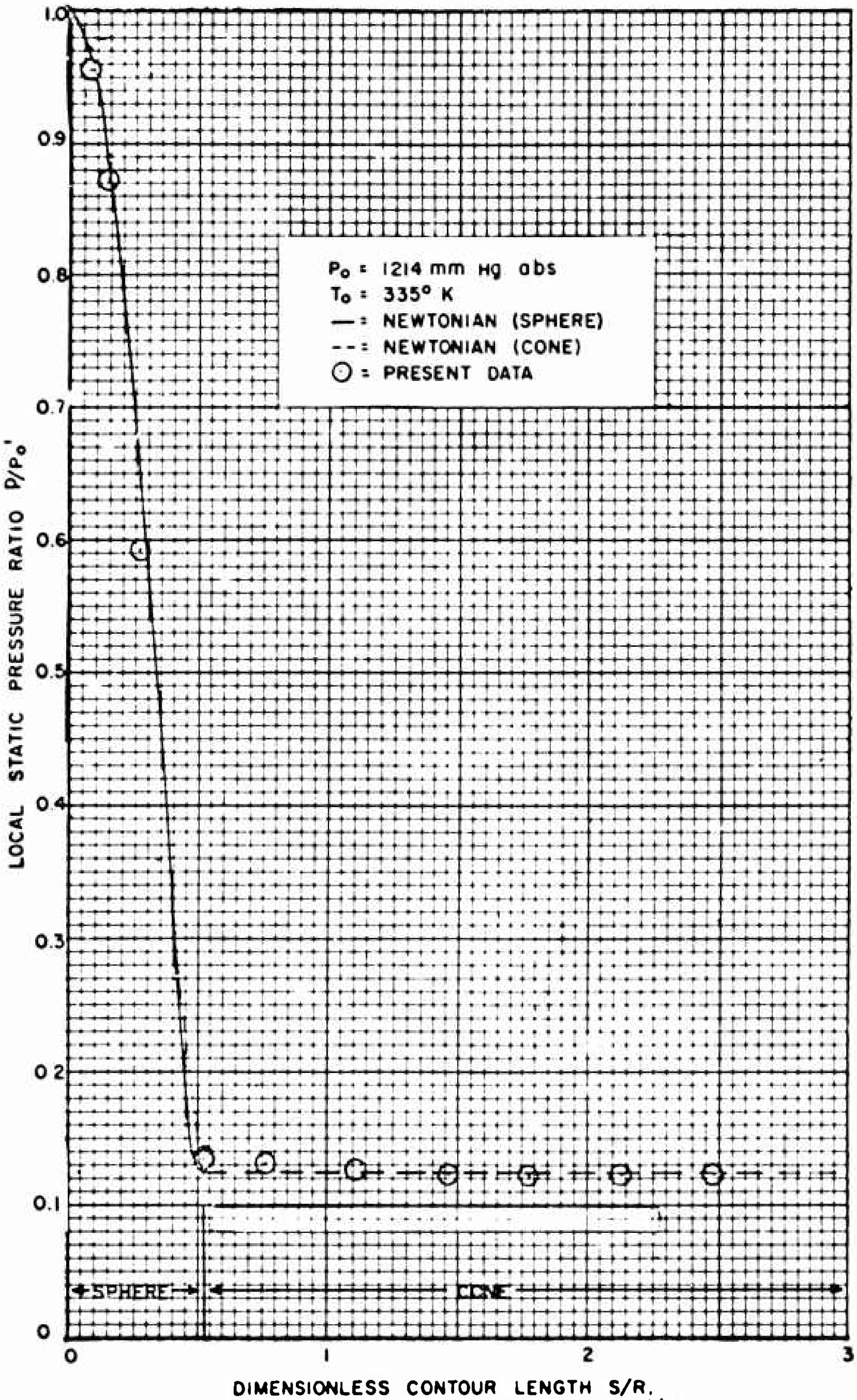

FIG. 6 LOCAL STATIC-PRESSURE DISTRIBUTION OVER THE SPHERE-CONE MODEL AT M_1 = 3.24 AND α=0°

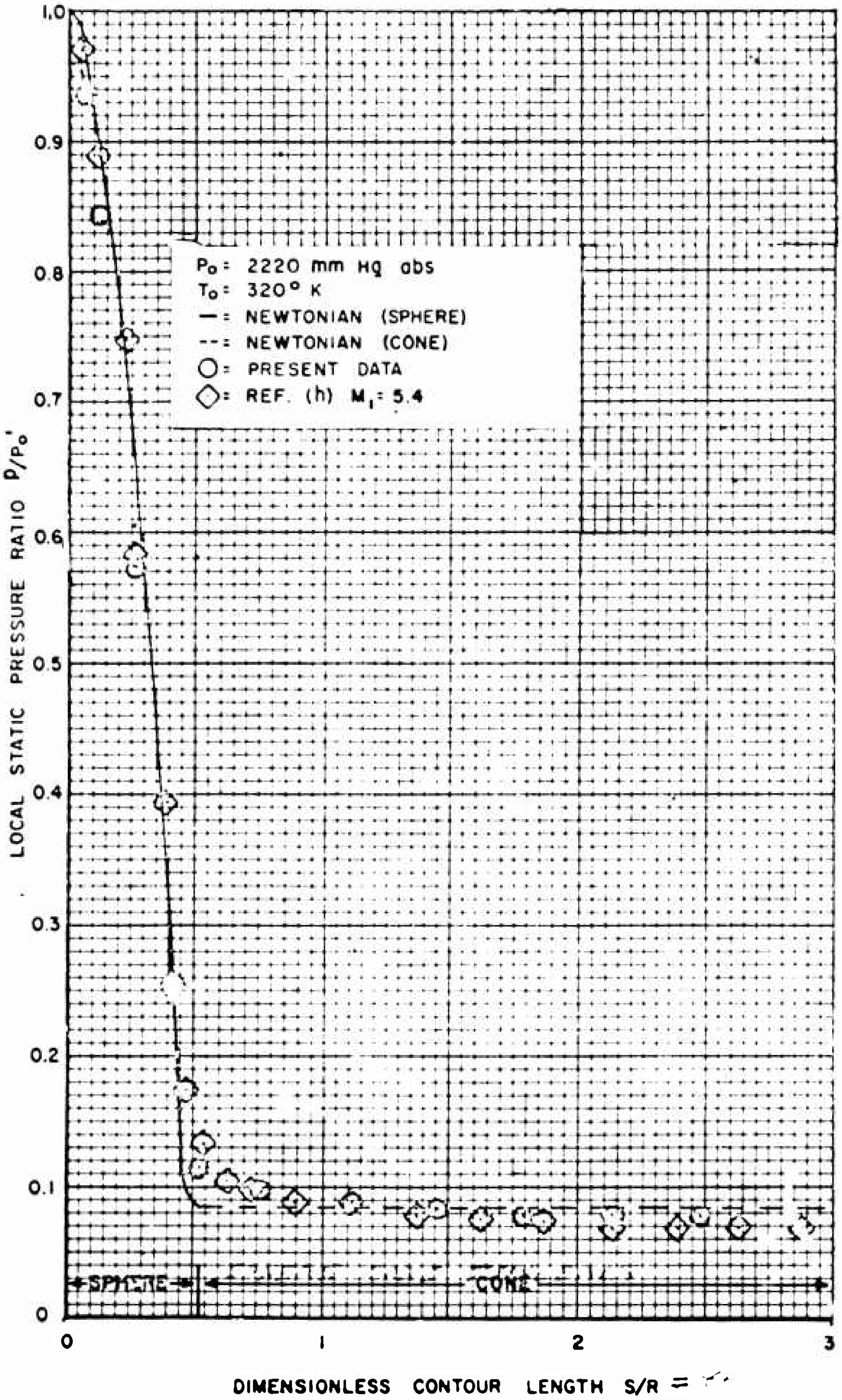

FIG. 7 LOCAL STATIC-PRESSURE DISTRIBUTION OVER THE SPHERE-CONE MODEL AT $M_1=4.84$ AND $\alpha=0°$

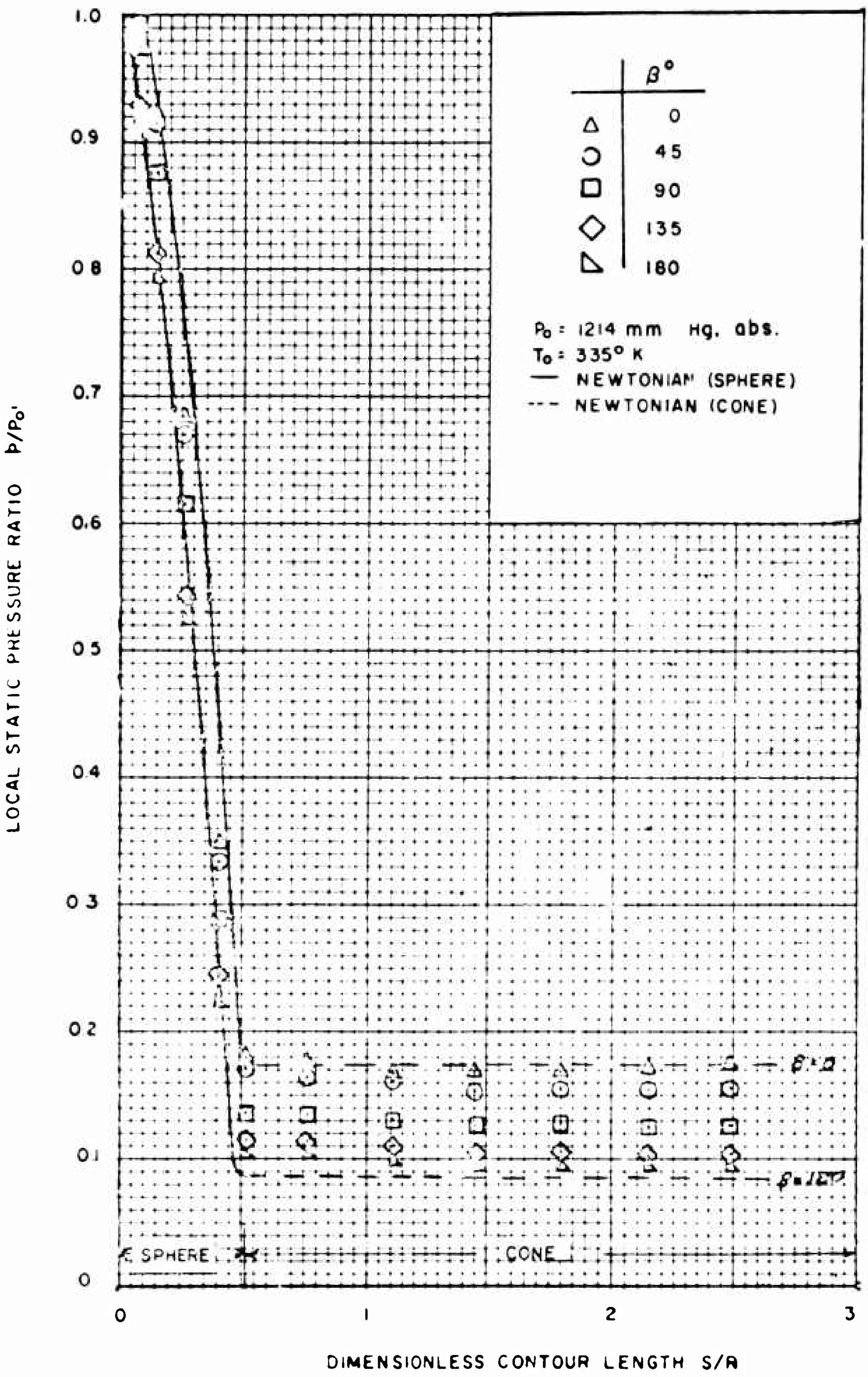

FIG. 8 LOCAL STATIC - PRESSURE DISTRIBUTION OVER THE SPHERE-CONE MODEL AT $M_1 = 3.24$ AND $\alpha = 6°$

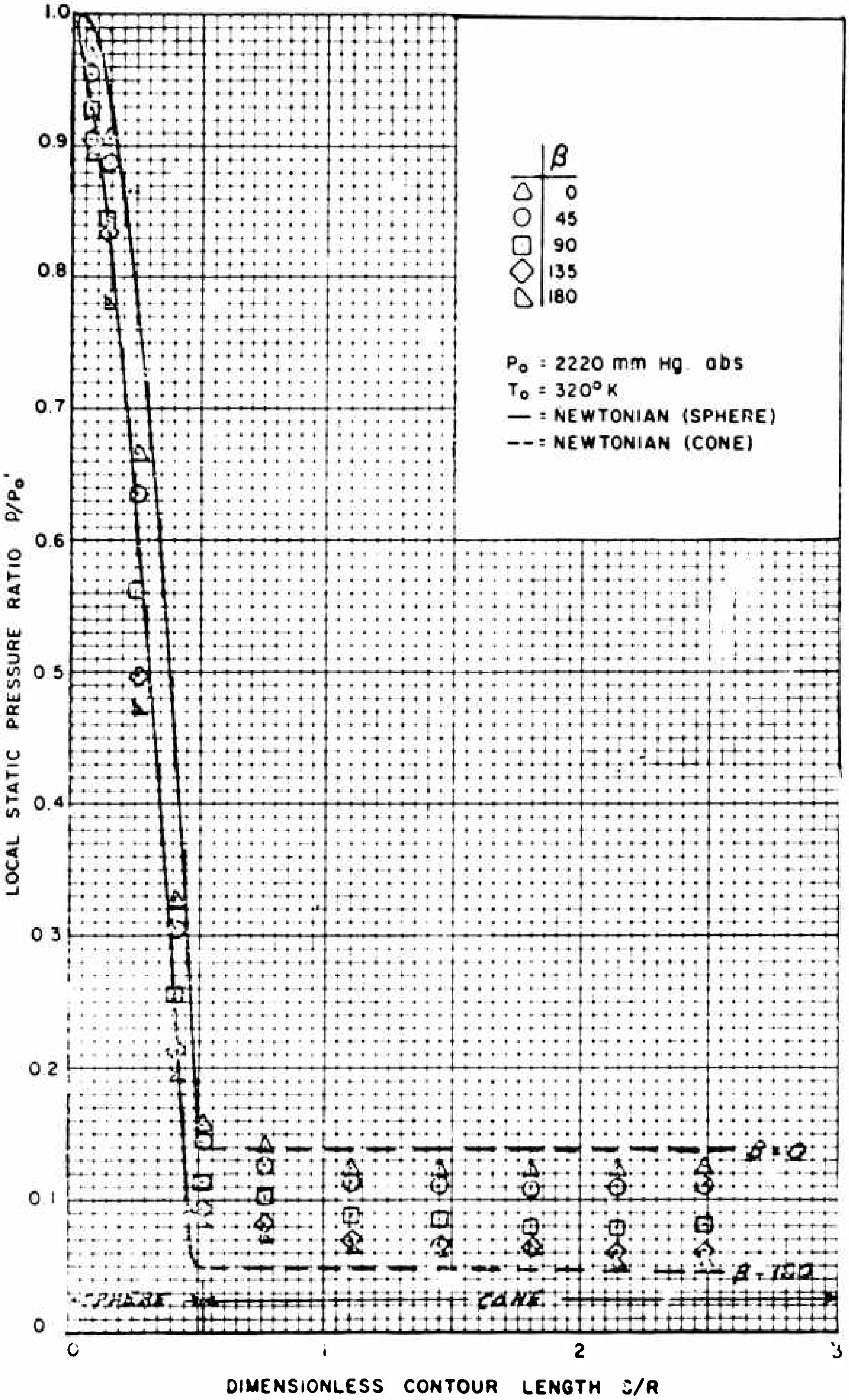

FIG. 9 LOCAL STATIC-PRESSURE DISTRIBUTION OVER THE SPHERE-CONE MODEL AT $M_1 = 4.84$ AND $\alpha = 6°$

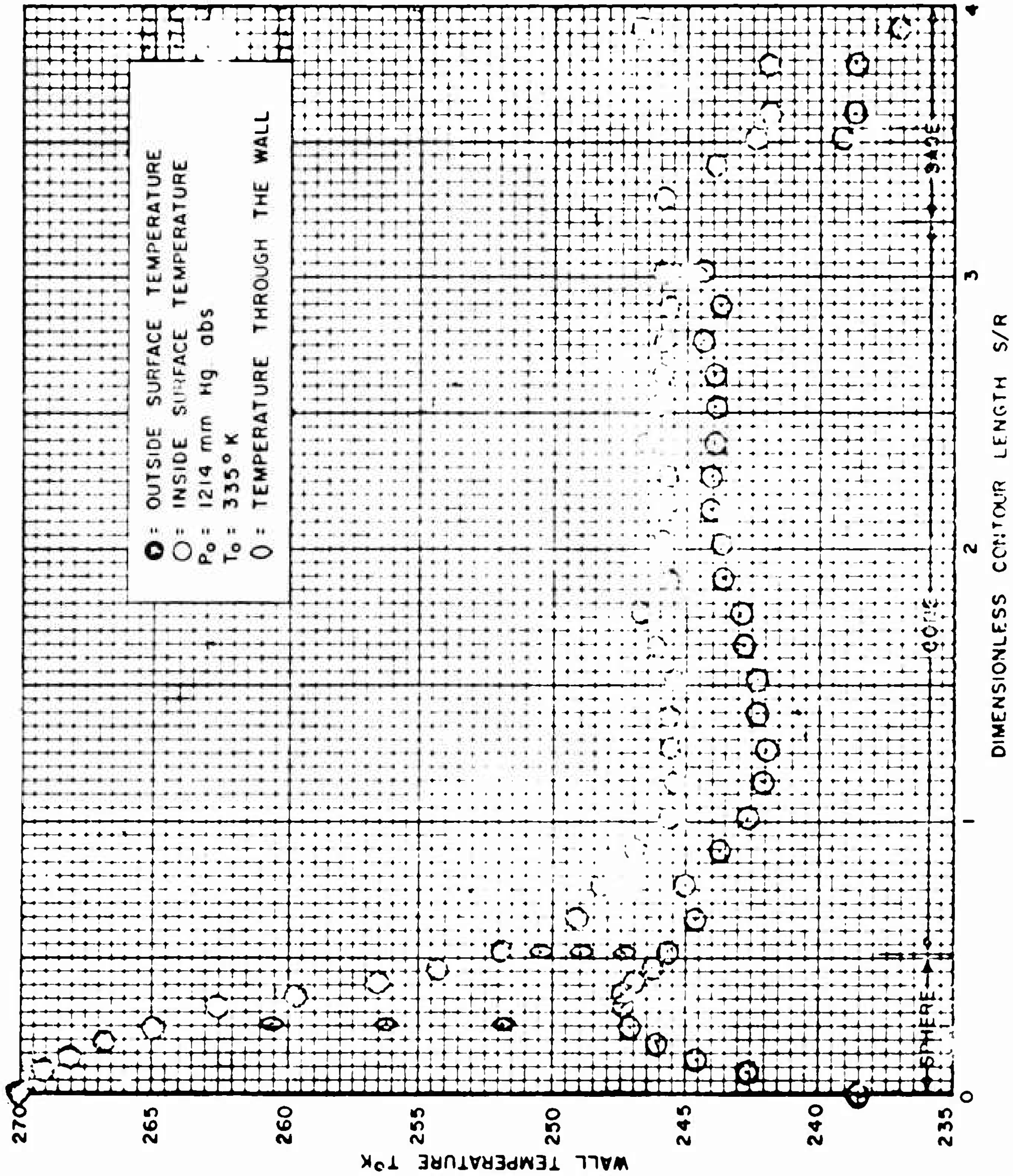

FIG. 10 SURFACE TEMPERATURE DISTRIBUTION OVER THE SPHERE-CONE MODEL AT $M_1 = 3.24$ AND $\alpha = 0°$

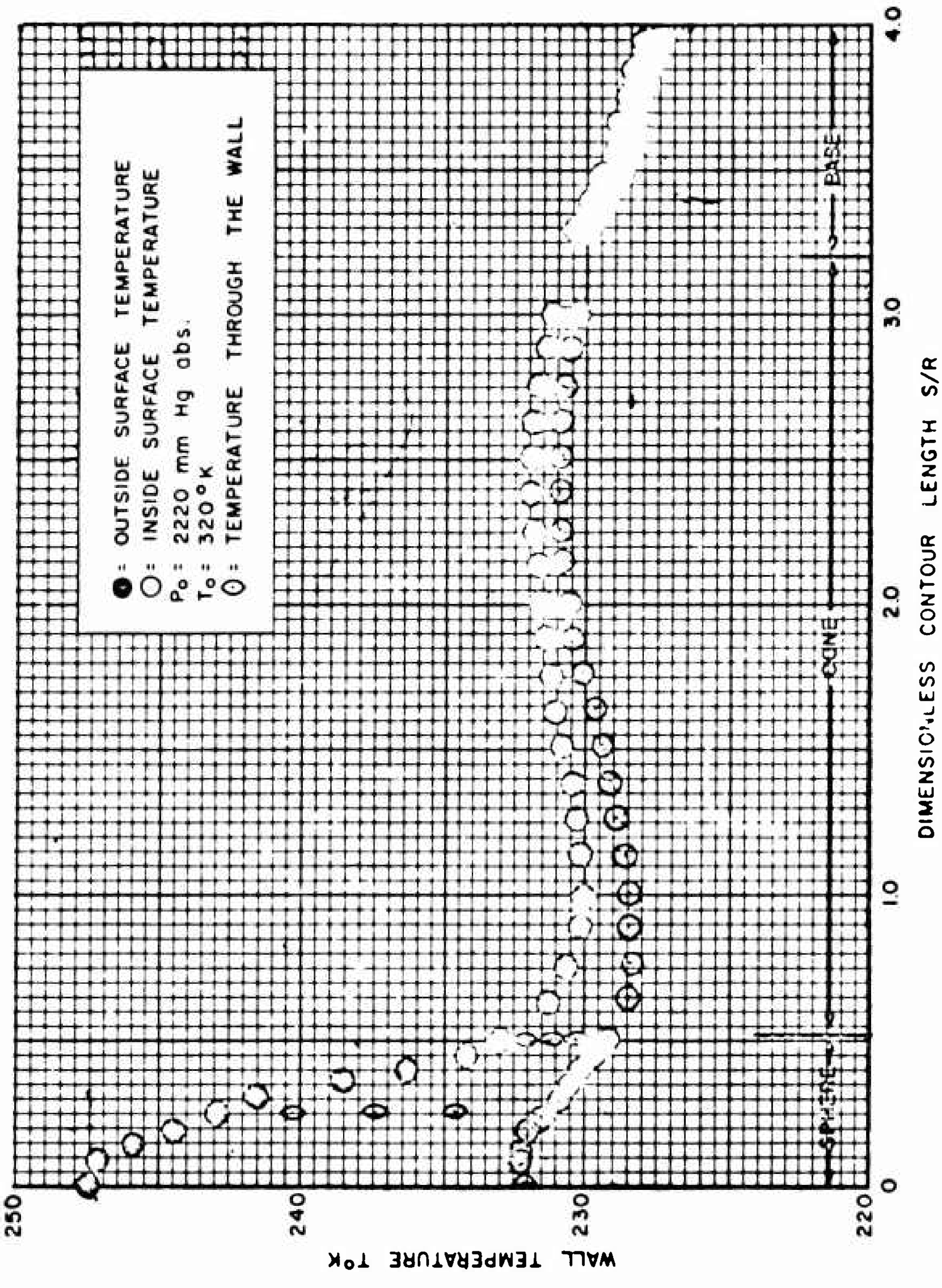

FIG. 11 SURFACE TEMPERATURE DISTRIBUTION OVER THE SPHERE-CONE MODEL AT $M_1 = 4.84$ AND $\alpha = 0°$

SPHERE-CONE MODEL AT $M_1 = 3.24$ AND $\alpha = 0°$

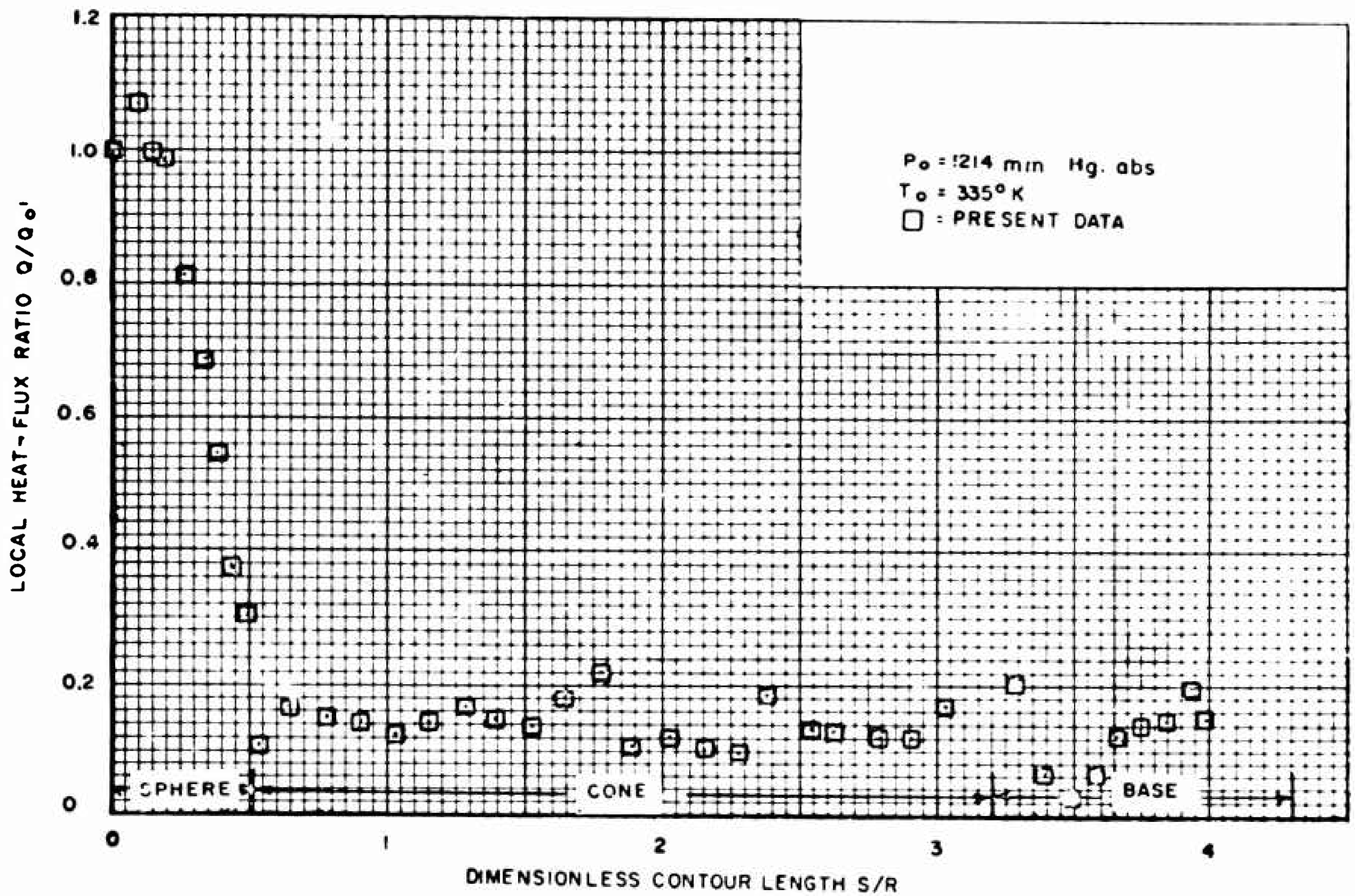

FIG. 12 LOCAL HEAT-FLUX DISTRIBUTION OVER THE SPHERE-CONE MODEL AT $M_\infty = 3.24$ AND $\alpha = 0°$

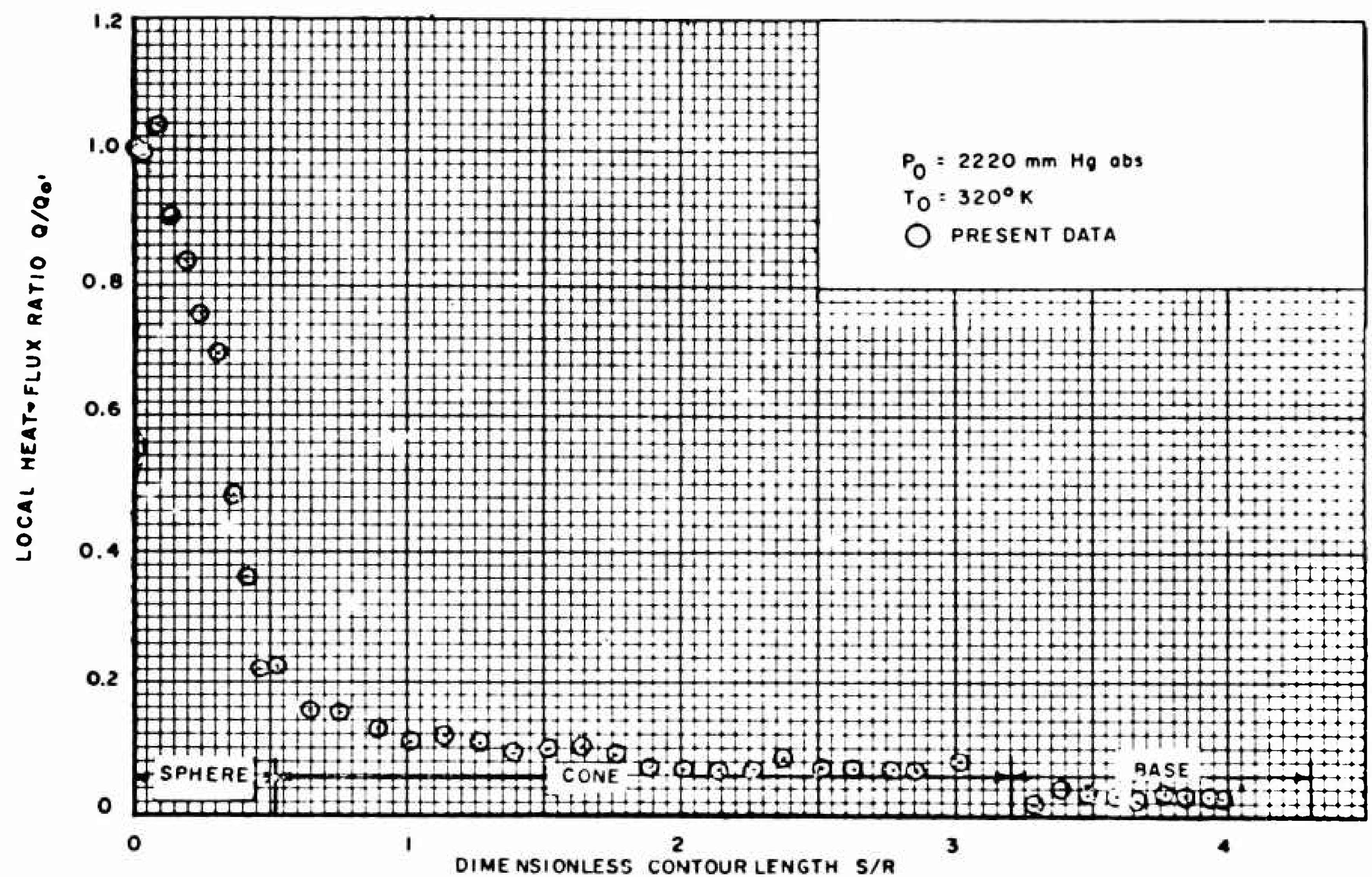

FIG. 13. LOCAL HEAT-FLUX DISTRIBUTION OVER THE SPHERE-CONE MODEL AT M_1 = 4.84 AND α = 0°

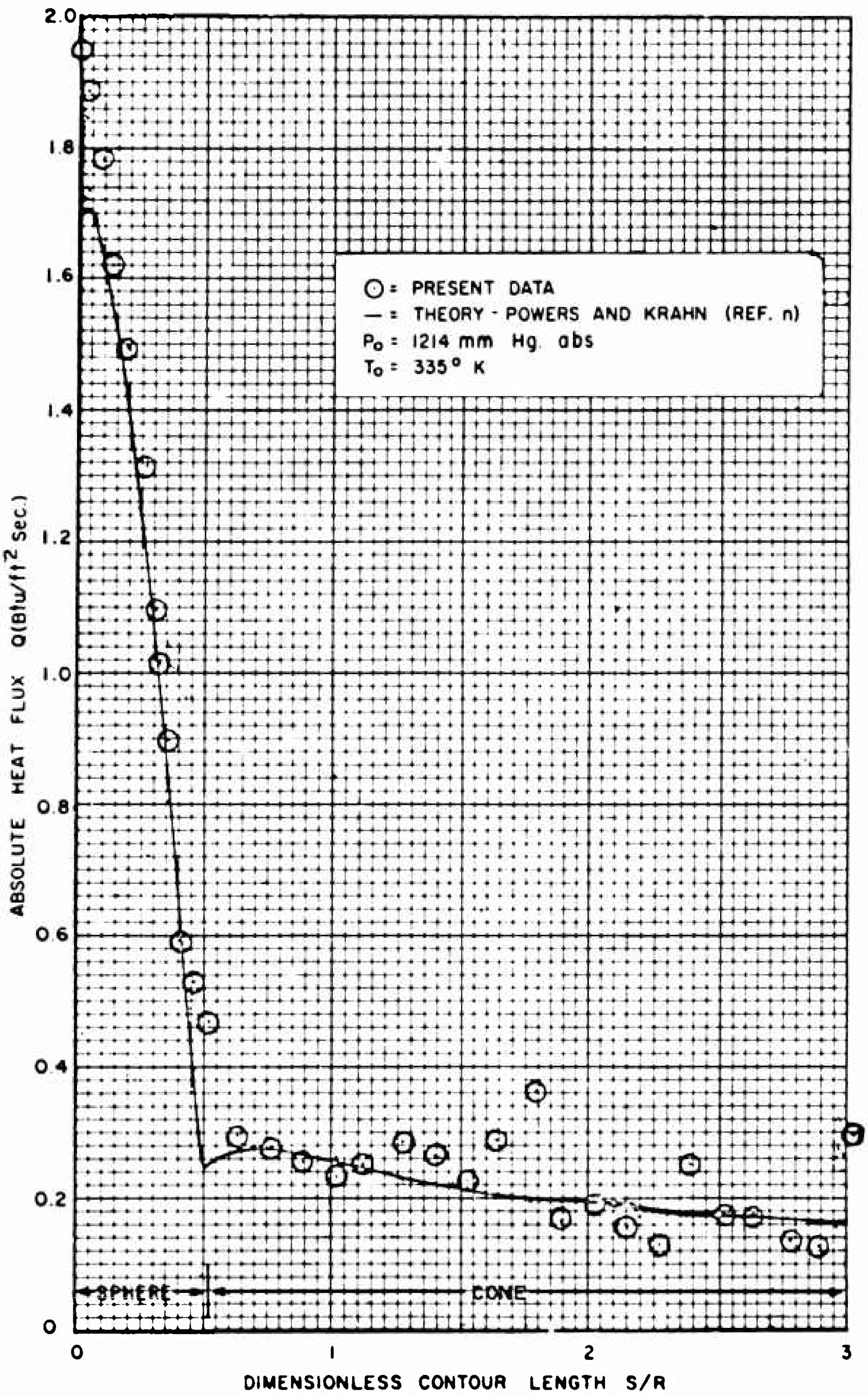

FIG. 14 A COMPARISON OF THE EXPERIMENTAL AND THEORETICAL ABSOLUTE LOCAL HEAT-FLUX OVER THE SPHERE-CONE MODEL AT $M_1 = 3.24$ AND $\alpha = 0°$

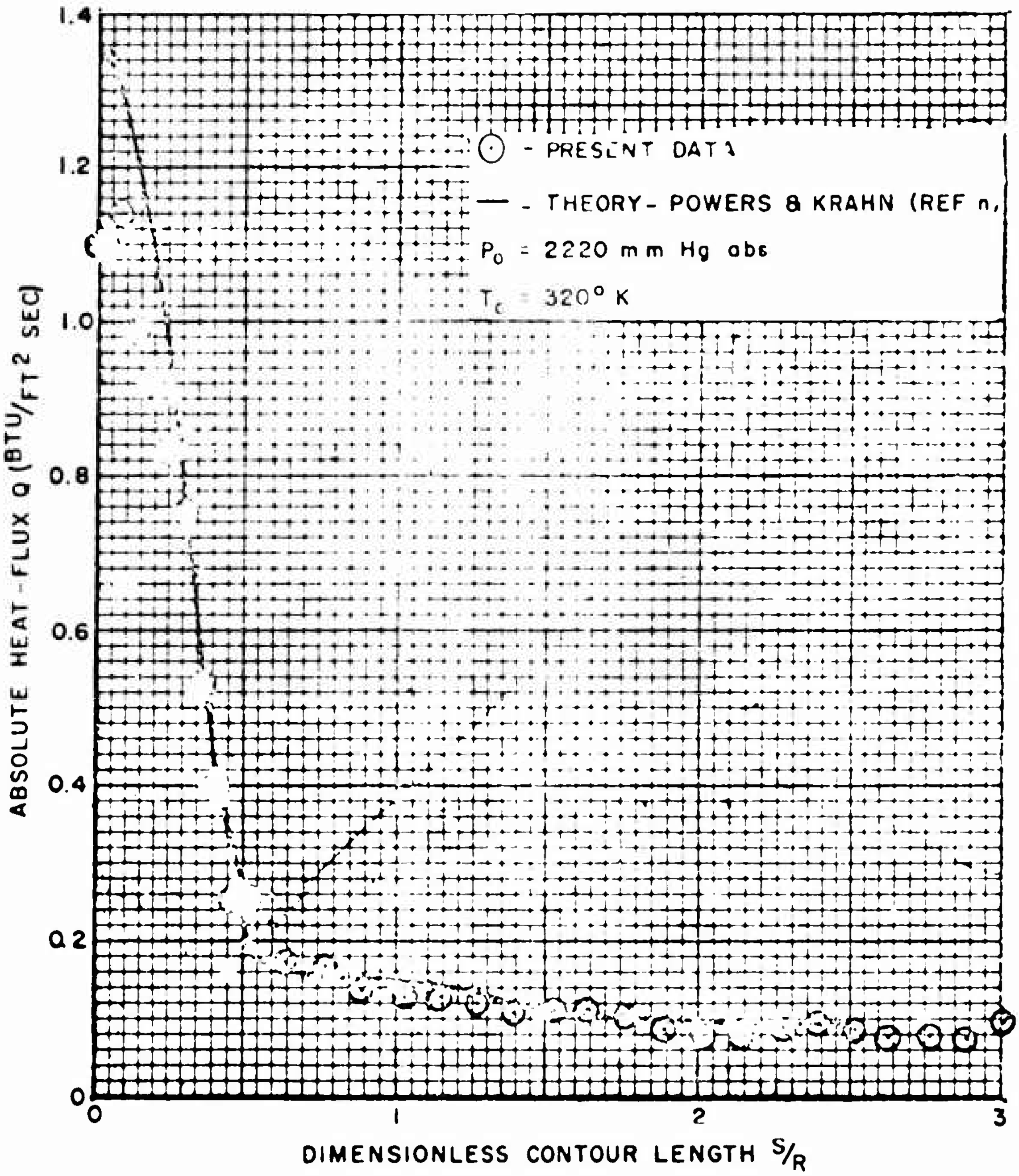

FIG. 15 A COMPARISON OF THE EXPERIMENTAL AND THEORETICAL ABSOLUTE LOCAL HEAT-FLUX OVER THE SPHERE-CONE MODEL AT M_1 = 4.84 AND α = 0°

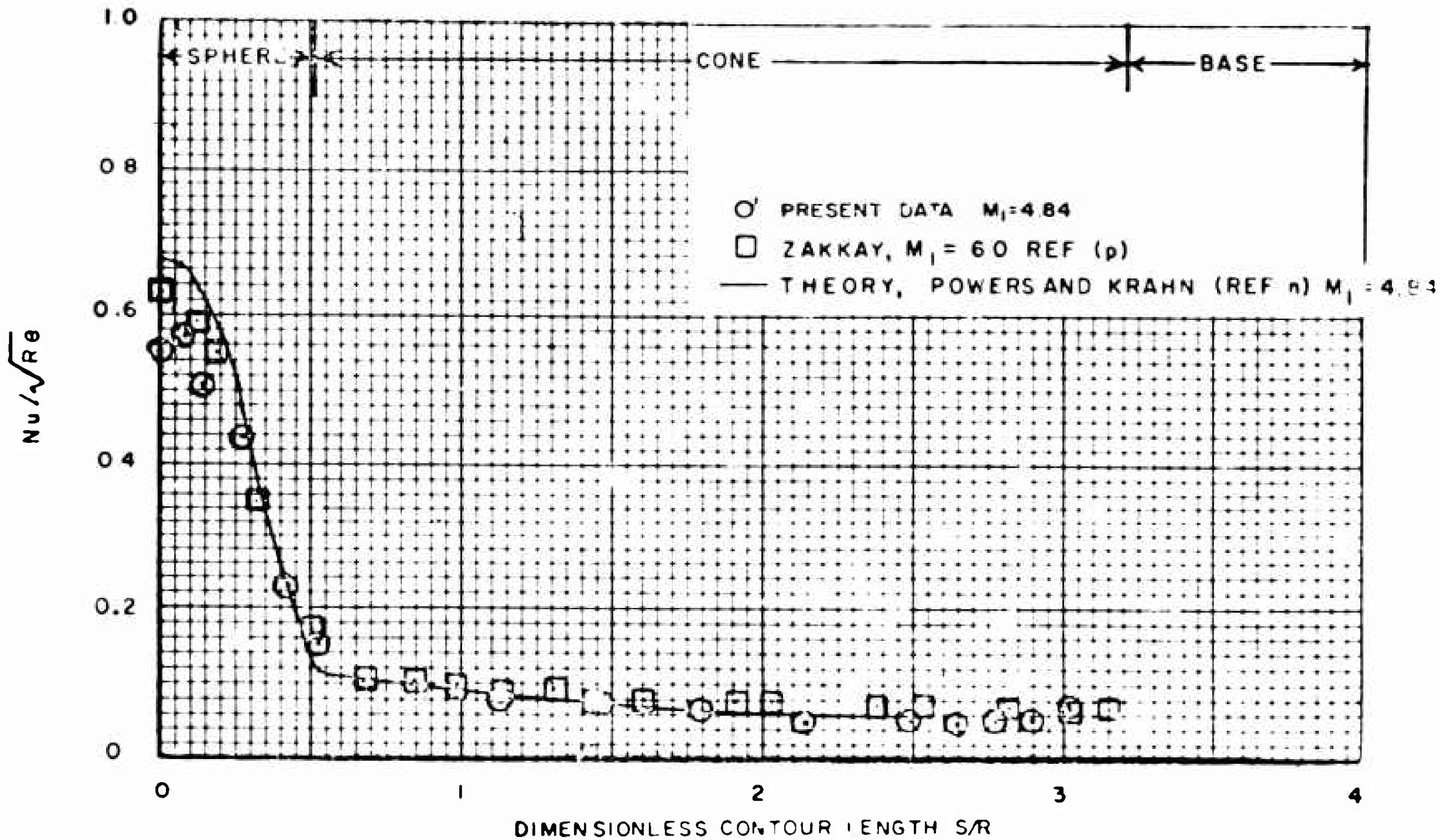

FIG. 16 DIMENSIONLESS HEAT-TRANSFER PARAMETER OVER THE SPHERE-CONE MODEL AT $\alpha = 0°$

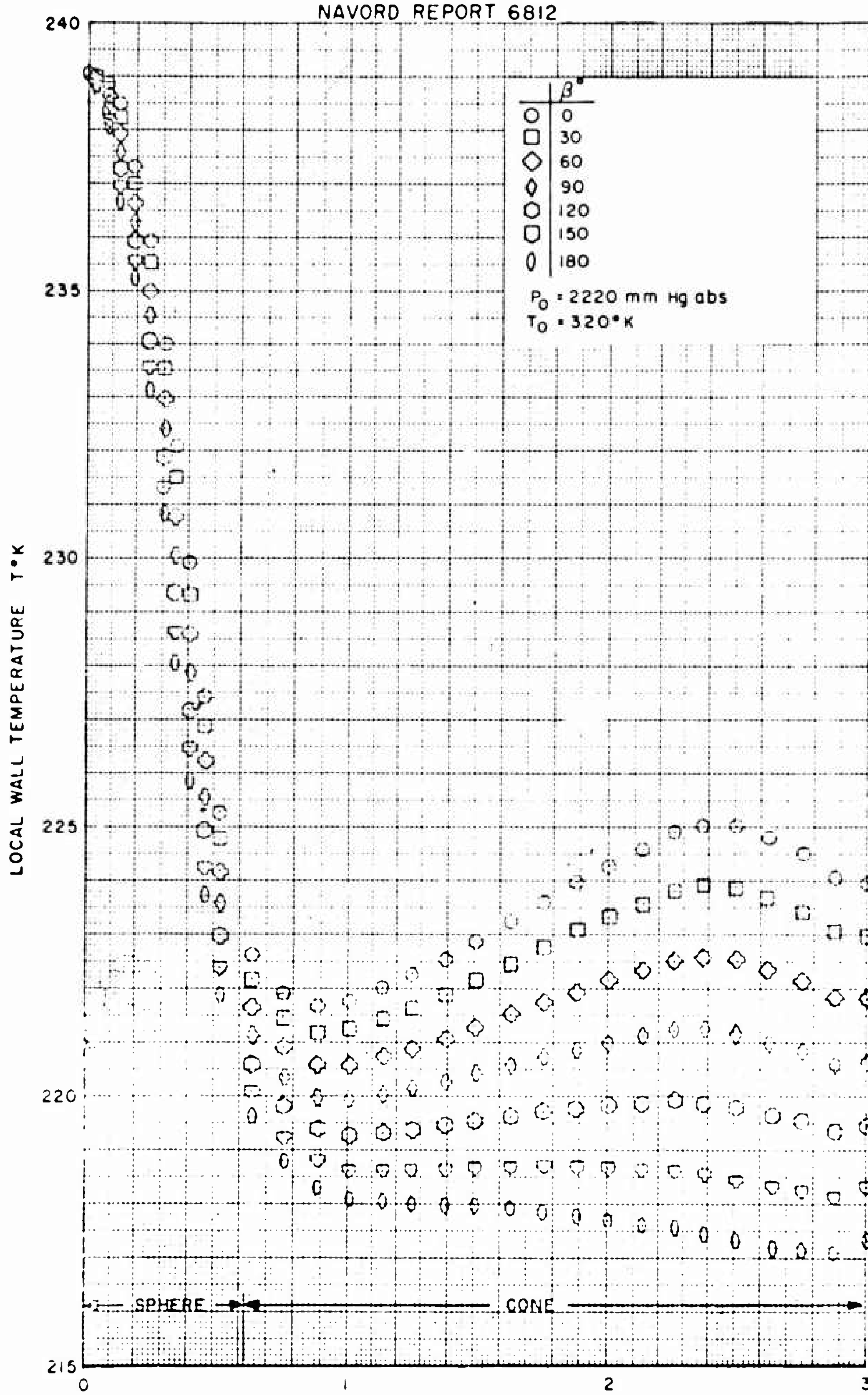

FIG. 17 LOCAL TEMPERATURE DISTRIBUTION ALONG THE OUTSIDE SURFACE OF THE SPHERE - CONE MODEL AT $M_1 = 4.84$ AND $\alpha = 6°$

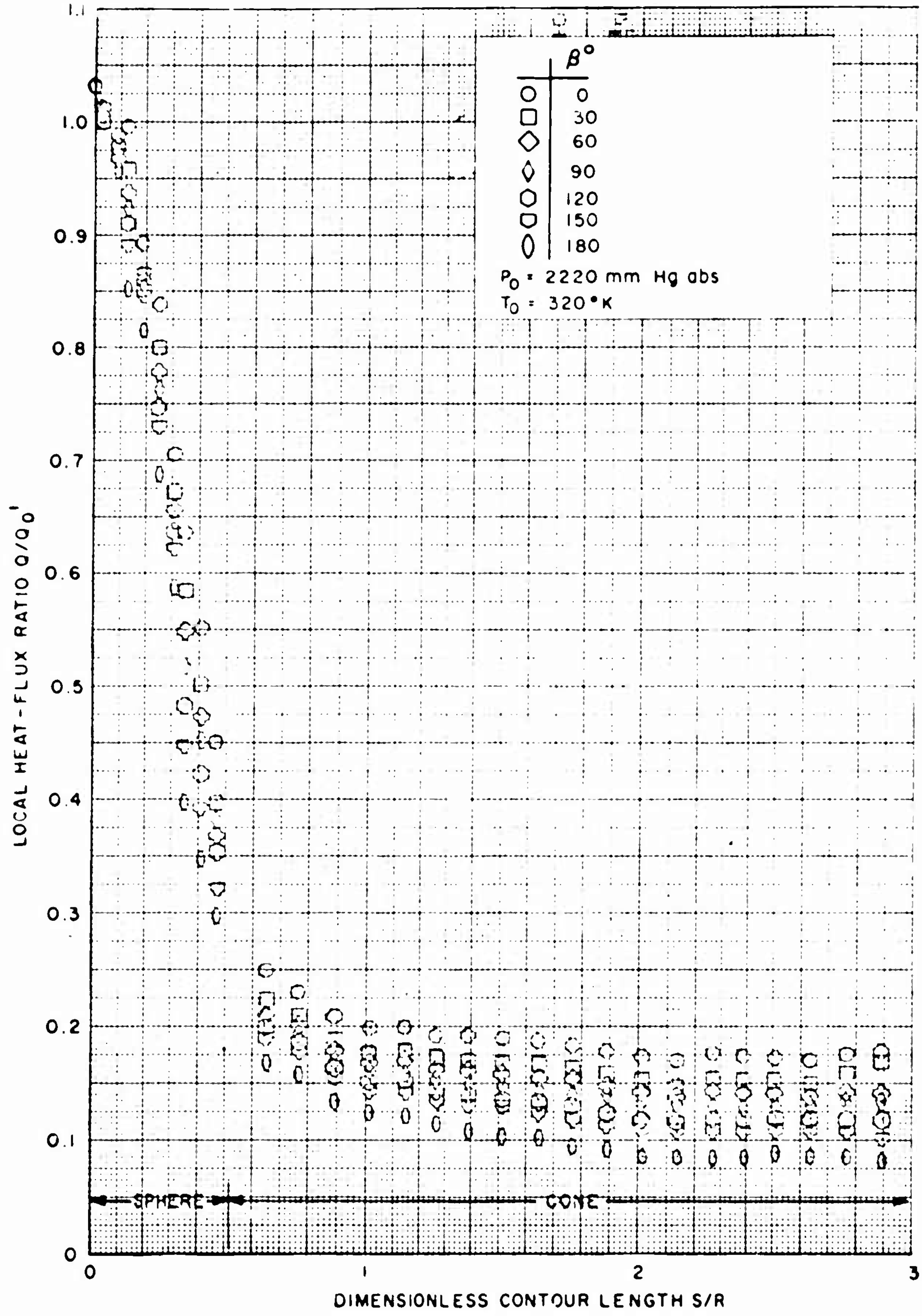

FIG. 18 LOCAL HEAT-FLUX DISTRIBUTION OVER THE SPHERE-CONE MODEL AT $M_1 = 4.84$ AND $\alpha = 6°$

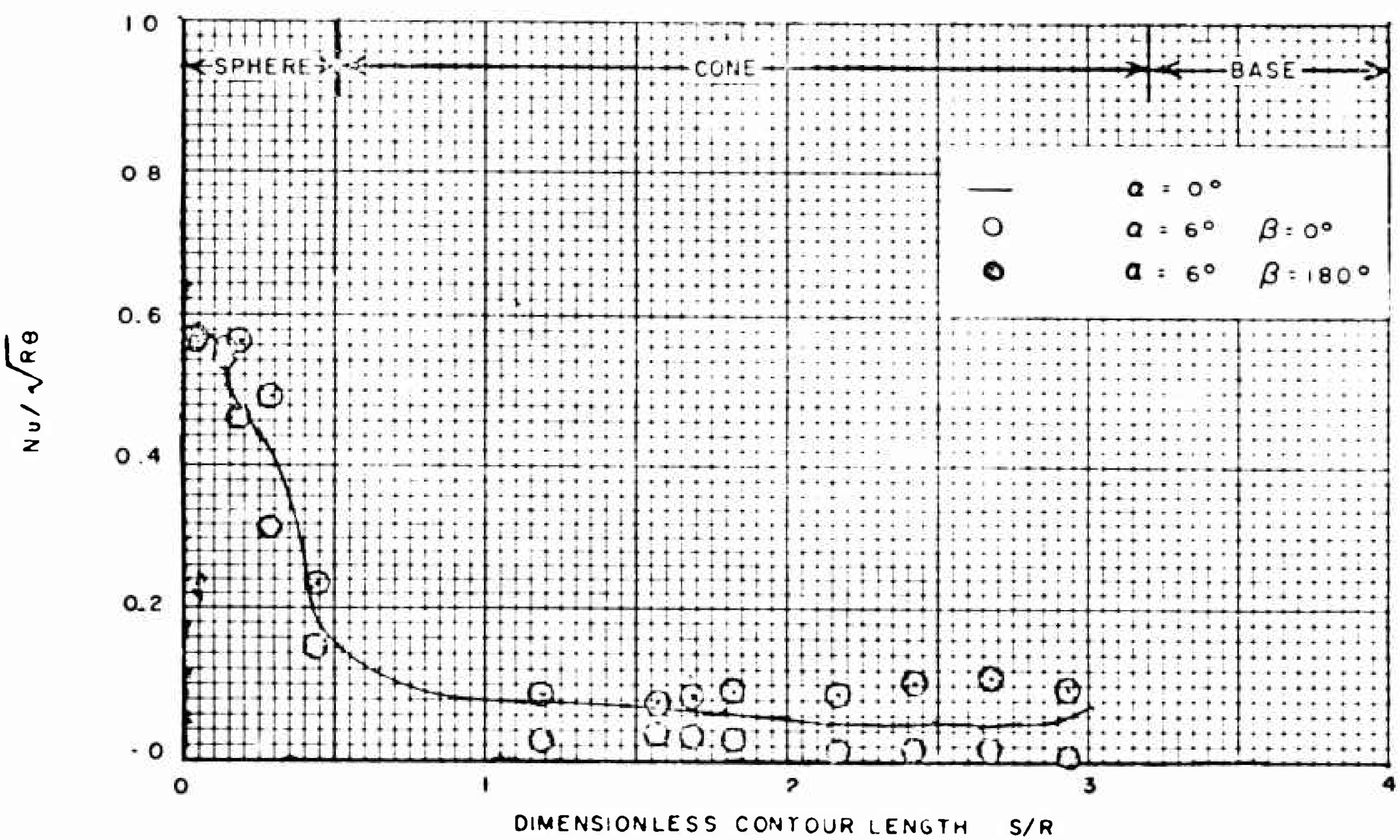

FIG. 19 DIMENSIONLESS HEAT-TRANSFER DISTRIBUTION OVER THE SPHERE-CONE MODEL AT M = 4.84; $\alpha = 0°$ AND 6° ($\beta = 0°$ AND 180°)

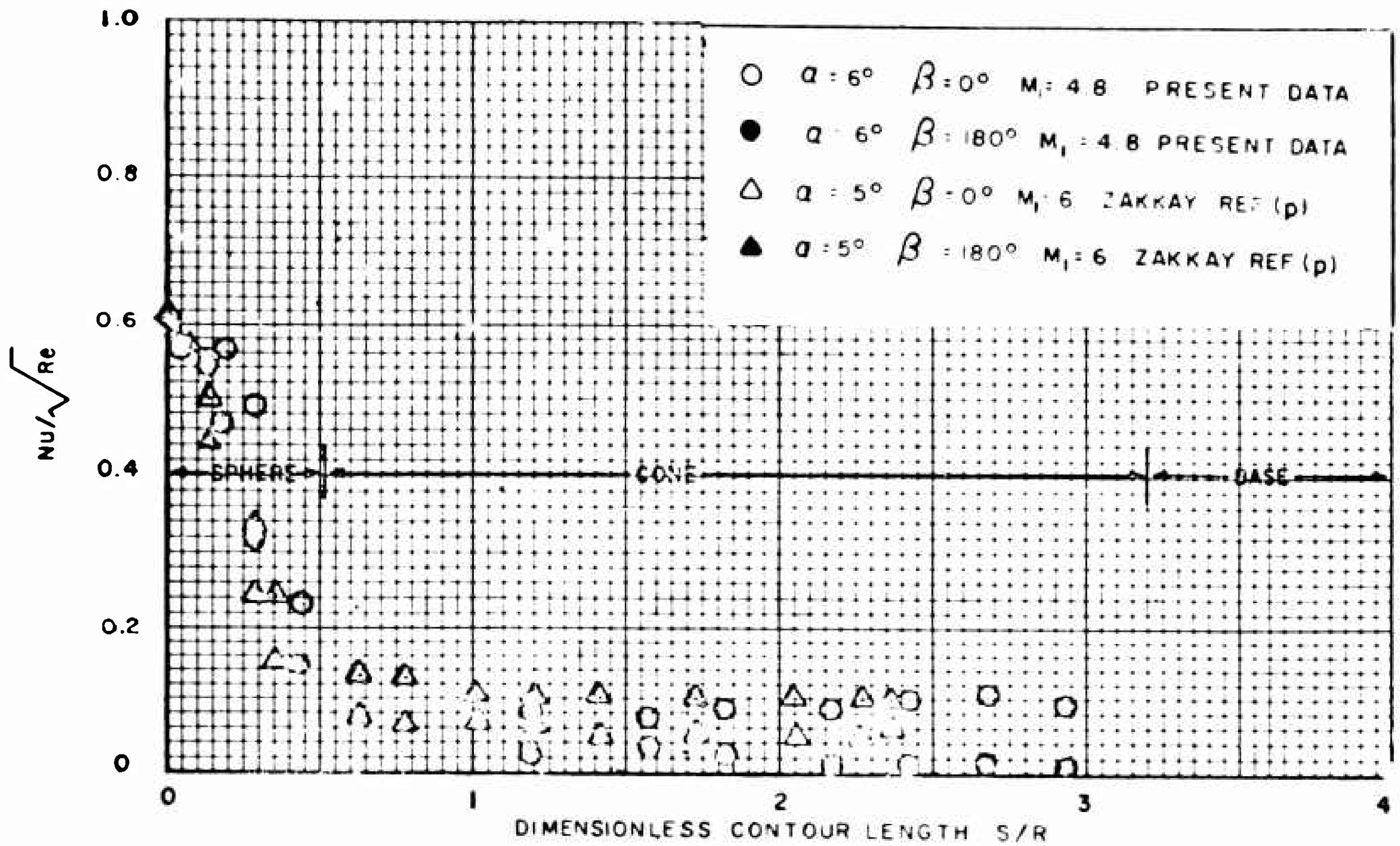

FIG. 20 DIMENSIONLESS HEAT-TRANSFER DISTRIBUTION OVER TWO SPHERE-CONE MODELS AT $\alpha = 5°$ AND $6°$ ($\beta = 0°$ AND $180°$)

Table I

Thermojunction Locations

A. Spherical Nose

Outside Thermo-junction	S(in.)	S/R	θ*	Inside Thermo-junction	S/R	θ*
1	0	0	0	2	0	0
1A	0.273	0.068	10°			
3	0.545	0.136	20°	4	0.136	20°
3A	0.818	0.204	30°			
5	1.227	0.305	45°	6(ABC)**	0.305	45°
5A	1.431	0.356	52°30'			
7	1.635	0.407	60°	8	0.407	60°
7A	1.826	0.455	67°			
9	2.090	0.520	76°40'	10(ABC)**	0.520	76°40'

B. Conical Section

Outside Thermo-junction	S(in.)	S/R	Inside Thermo-junction	S/R
11	2.590	0.645	12	0.645
13	3.090	0.769	14	0.769
15	3.590	0.894	16	0.894
17	4.090	1.018	18	1.018
19	4.590	1.143	20	1.143
21	5.090	1.267	22	1.267
23	5.590	1.392	24	1.392
25	6.090	1.516	26	1.516
27	6.590	1.640	28	1.640
29	7.090	1.765	30	1.765
31	7.590	1.890	32	1.890
33	8.090	2.014	34	2.014
35	8.590	2.138	36	2.138
37	9.090	2.263	38	2.263
39	9.590	2.387	40	2.387
41	10.090	2.512	42	2.512
43	10.590	2.636	44	2.636
45	11.090	2.761	46	2.761
47	11.590	2.885	48	2.885
49	12.090	3.010	50(ABC)**	3.010
Base	12.880	3.206		

C. Spherical Afterbody

Outside Thermo-junction	S(in.)	S/R	θ*	Inside Thermo-junction	S/R	θ*
51	15.696	3.907	14°45'	52	3.907	14°45'
53	15.196	3.783	19°24'	54	3.783	19°24'
55	14.696	3.658	24°3'	56	3.658	24°3'
57	14.196	3.534	28°42'	58	3.534	28°42'
59	13.696	3.410	33°21'			
61	13.196	3.285	38°			

* Angular position on the spherical surface measured from the axis of symmetry.

** (ABC) These are the three thermojunctions located through th wall at the specified values of S/R. The inner and outer wall thermojunctions plus the three through the wall make a total of five which are equally spaced at 0.125" intervals through the wall.

Table II

Pressure Orifice Locations

Orifice Number	S/R	θ
1	.068	10°
2	.136	20°
3	.258	38°
4	.407	60°
5	.520*	$76^{\circ}40'$
6	.769	
7	1.112	
8	1.454	
9	1.796	
10	2.138	
11	2.481	

*Tangency of sphere and cone.

Table III

LOCAL PRESSURE RATIOS ON THE SPHERE-CONE MODEL AT $M_1 = 3.24$

(P_o = 1214 mm Hg. abs., T_o = 335°K, Re_1/meter x 10^{-6} = 9.0)

Roll Angle, β	0	0	15	30	45	60	75	90	105	120	135	150	165	180
Yaw Angle, α	0	6	6	6	6	6	6	6	6	6	6	6	6	6
S/R	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'
0.0679	0.967	0.9[illegible]	0.997	1.000	0.993	0.990	0.981	0.973	0.961	0.944	0.929	0.919	0.914	0.915
0.1358	0.872	[illegible]2	.924	0.917	0.914	0.908	0.894	0.876	0.855	0.833	0.812	0.796	0.793	0.792
0.2579	0.594	0.684	.682	0.67[illegible]	0.670	0.653	0.640	0.616	0.583	0.556	0.542	0.532	0.528	0.525
0.4071	0.284	0.34[illegible]	0.351	0.314	0.334	0.321	0.306	0.289	0.271	0.257	0.246	0.217	0.225	0.222
0.5203	0.135	0.180	0.180	0.177	0.171	0.161	0.149	0.137	0.130	0.123	0.115	0.108	0.106	0.104
0.7692	0.131	0.178	0.178	0.173	0.165	0.15[illegible]	0.145	0.135	0.127	0.118	0.113	0.107	0.105	0.104
1.1115	0.128	0.168	0.169	0.169	0.161	0.150	0.139	0.131	0.121	0.114	0.110	0.103	0.101	0.099
1.4538	0.122	0.169	0.167	0.161	0.153	0.146	0.137	0.128	0.119	0.112	0.105	0.101	0.097	0.096
1.7961	0.122	0.169	0.168	0.165	0.156	0.149	0.135	0.129	0.116	0.109	0.106	0.102	0.097	0.097
2.1384	0.122	0.171	0.172	0.166	0.156	0.147	0.136	0.126	0.116	0.107	0.103	0.100	0.097	0.097
2.4807	0.122	0.175	0.172	0.166	0.157	0.148	0.136	0.127	0.116	0.108	0.103	0.100	0.098	0.096

Table IV

LOCAL PRESSURE RATIOS ON THE SPHERE-CONE
MODEL AT $M_1 = 4.84$

(P_o = 2010 mm Hg. abs., T_o = 322°K, Re_1/meter x 10^{-6} = 7.8)

Roll Angle, β	0	0	15	30	45	60	75	90	105	120	135	150	165	180
Yaw Angle, α	0	6	6	6	6	6	6	6	6	6	6	6	6	6
S/R	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'	p/P_o'
0.0679	0.939	0.968	0.965	0.960	0.954	0.946	0.940	0.929	0.920	0.912	0.904	0.827	0.895	0.893
0.1358	0.854	0.907	0.905	0.898	0.888	0.870	0.856	0.845	0.827	0.813	0.835	0.753	0.783	0.779
0.2579	0.568	0.667	0.663	0.652	0.636	0.606	0.587	0.562	0.538	0.517	0.498	0.518	0.511	0.471
0.4071	0.259	0.328	0.325	0.316	0.305	0.134	0.274	0.256	0.239	0.225	0.213	0.203	0.199	0.195
0.5203	0.123	0.158	0.155	0.150	0.143	0.120	0.125	0.114	0.106	0.098	0.093	0.086	0.084	0.083
0.7692	0.102	0.141	0.138	0.134	0.128	0.104	0.112	0.102	0.093	0.086	0.081	0.075	0.074	0.072
1.1115	0.089	0.125	0.123	0.119	0.114	0.104	0.098	0.089	0.081	0.076	0.071	0.066	0.065	0.064
1.4538	0.086	0.123	0.121	0.116	0.111	0.103	0.095	0.085	0.079	0.073	0.068	0.064	0.063	0.062
1.7961	0.081	0.122	0.120	0.115	0.109	0.100	0.096	0.080	0.079	0.074	0.063	0.059	0.057	0.062
2.1384	0.080	0.124	0.122	0.117	0.110	0.101	0.095	0.079	0.072	0.065	0.061	0.056	0.055	0.055
2.4807	0.082	0.127	0.125	0.120	0.111	0.109	0.098	0.081	0.073	0.066	0.061	0.057	0.057	0.056

TABLE V

LOCAL TEMPERATURE DISTRIBUTION ON THE SPHERE-CONE MODEL AT M_1 = 3.24

(P_0 = 1398 MM HG. ABS., T_0 = 325.4°K, RE_1/METER X 10^{-6} = 10.81)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	248.2				218.7
S	0.068	251.7				
P	0.136	248.2				224.2
H	0.204	248.2				
E	0.305	239.2	236.2	231.7	227.2	223.2
R	0.356	236.2				
E	0.407	232.2				221.7
	0.455	230.2				
	0.520	226.2	225.7	223.7	221.7	220.7
	0.520	226.2	225.7	223.7	221.7	220.7
	0.645	226.2				219.2
	0.769	225.2				219.2
	0.894	225.2				219.7
C	1.018	225.7				220.2
O	1.143	226.2				220.7
N	1.267	226.7				221.7
E	1.392	227.2				222.2
	1.516	227.2				221.2
	1.640	227.7				221.7
	1.765	228.2				229.2
	1.890	228.2				224.2
	2.014	228.7				224.7
	2.138	227.2				225.2
	2.263	227.2				225.2
	2.387	227.7				225.2
	2.512	227.7				225.2
	2.636	227.2				223.2
	2.761	227.2				225.2
	2.885	226.7				224.2
	3.010	228.2	226.7	225.7	225.2	220.7
	3.285	228.2				
B	3.410	225.7				
A	3.534	223.7				218.2
S	3.659	223.2				218.2
E	3.783	223.2				218.2
	3.907	223.7				217.2

TABLE V (CONT.)

(P_0 = 1458 MM HG. ABS., T_0 = 324.7°K, RE_1/METER X 10^{-6} = 11.3)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	272.3				263.7
S	0.068	271.6				
P	0.136	271.3				264.7
H	0.204	270.3				
E	0.305	268.5	267.5	266.5	265.0	264.1
R	0.356	267.2				
E	0.407	266.4				263.4
	0.455	265.5				
	0.520	264.5	264.1	263.9	263.5	263.1
	0.520	264.5	264.1	263.9	263.5	263.1
	0.645	263.7				262.2
	0.769	263.2				262.1
	0.894	263.0				262.0
C	1.018	262.8				262.1
O	1.143	262.8				262.2
N	1.267	262.8				262.2
E	1.392	262.8				262.3
	1.516	262.8				262.3
	1.640	262.8				262.3
	1.765	262.7				262.4
	1.890	262.7				262.4
	2.014	262.7				262.3
	2.138	262.6				262.3
	2.263	262.5				262.3
	2.387	262.5				262.3
	2.512	262.3				262.1
	2.636	262.2				261.9
	2.761	261.9				261.6
	2.885	261.6				261.2
	3.010	261.6	261.4	261.3	261.2	260.[illegible]
	3.285	261.6				
B	3.410	360.5				
A	3.534	259.7				258.9
S	3.659	259.4				258.8
E	3.783	259.4				258.6
	3.907	259.1				258.4

TABLE V (CONT.)

(P_0 = 1458 MM HG. ABS., T_0 = 325.2 °K, RE_1/METER X 10^{-6} = 11.3)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	271.8				263.4
S	0.068	271.1				
P	0.136	270.9				264.3
H	0.204	270.0				
E	0.305	268.2	267.3	266.1	265.0	263.7
R	0.356	266.9				
E	0.407	266.0				263.1
	0.455	265.2				
	0.520	264.4	264.1	263.6	263.5	262.6
	0.520	264.4	264.1	263.6	263.5	262.6
	0.645	263.2				262.1
	0.769	262.7				261.9
	0.894	262.4				261.8
C	1.018	262.4				261.8
O	1.143	262.4				261.9
N	1.267	262.5				262.0
E	1.392	262.5				262.0
	1.516	262.5				262.0
	1.640	262.5				262.0
	1.765	262.5				262.0
	1.890	262.5				262.0
	2.014	262.4				261.9
	2.138	262.4				261.9
	2.263	262.3				261.8
	2.387	262.1				261.7
	2.512	262.0				261.6
	2.636	261.8				261.5
	2.761	261.6				261.3
	2.885	261.4				261.0
	3.010	261.3	261.1	261.1	260.8	260.6
	3.285	261.2				
B	3.410	260.0				
A	3.534	259.3				258.5
S	3.659	259.0				258.2
E	3.783	259.1				258.3
	[illegible]	258.9				258.1

TABLE V (CONT.)

(P_0 = 1214 MM HG. ABS., T_0 = 336.3 °K, RE_1/METER X 10^{-6} = 6.9)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
SPHERE	0.000	268.8				239.3
	0.068	268.9				
	0.136	267.9				246.3
	0.204	266.2				
	[illegible]	262.3	259.5	255.9	252.0	247.9
	[illegible]	259.7				
	[illegible]	256.6				247.7
	[illegible]	254.9				
	0.520	251.8	251.0	249.5	247.9	246.2
CONE	0.520	251.8	251.0	249.5	247.9	246.2
	0.645	249.2				245.1
	0.769	248.1				245.3
	0.894	246.9				244.0
	1.018	245.6				242.7
	1.143	245.2				242.1
	1.267					242.0
	1.392	245.3				242.3
	1.516	245.3				242.3
	1.640	246.0				242.7
	1.765	246.7				242.7
	1.890	245.6				243.3
	2.014	245.8				243.3
	2.138	245.9				243.7
	2.263	245.8				243.7
	2.378	246.6				243.6
	2.512	246.1				243.4
	2.636	246.1				243.4
	2.761	246.1				243.7
	2.885	246.1				243.8
	3.010	246.4	245.7	245.0	244.2	243.4
BASE	3.285	246.4				
	3.410	244.5				
	3.534	242.9				238.5
	3.659	242.4				238.0
	3.783	242.4				237.9
	3.907	247.3				236.2

TABLE V (CONT.)

(P_0 = 1210 MM HG. ABS., T_0 = 336.3 °K, RE_1 /METER X 10^{-6} = 8.8)

$\alpha = 0°$

		OUTSIDE SURFACE		THROUGH THE WALL		INSIDE SURFACE
	S/R	T °K		T °K		T °K
	0.000	264.7				233.6
S	0.068	265.7				
P	0.136	264.6				241.7
H	0.204	263.0				
E	0.305	259.2	255.9	252.0	248.0	243.8
R	0.356	256.7				
E	0.407	254.5				243.6
	0.455	252.1				
	0.520	249.2	247.9	246.4	244.7	242.7
	0.520	249.2	247.9	4	244.7	242.7
	0.645	247.3				242.4
	0.769	247.1				243.9
	0.894	246.2				243.3
C	1.018	245.0				242.0
O	1.143	244.3				241.0
N	1.267	244.0				240.6
E	1.392	243.2				240.3
	1.516	243.0				240.0
	1.640	243.5				240.2
	1.765	243.6				239.9
	1.890	243.7				240.0
	2.014	242.5				240.0
	2.138	242.3				240.3
	2.263	242.2				240.0
	2.378	243.1				239.9
	2.512	242.5				239.9
	2.636	242.6				240.2
	2.761	242.9				240.4
	2.885	243.0				240.9
	3.010	243.4	242.4	242.0	241.5	240.9
	3.285	243.3				
B	3.410	241.0				
A	3.534	239.3				236.1
S	3.659	238.5				235.4
E	3.783	238.4				235.0
	3.907	238.8				233.1

TABLE V (CONT.)

(P_0 = 1461 MM HG. ABS., T_0 = 327.3°K, RE_1/METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 0°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
SPHERE	0.000	270.3				261.5
	0.068	270.2				
	0.136	269.9				262.6
	0.204	269.3				
	0.[illegible]05	267.5	266.2	264.7	263.2	262.1
	0.356	266.0				
	0.407	265.3				261.6
	0.455	264.3				
	0.520	263.3	262.6	262.1	261.6	261.0
CONE	0.520	263.3	262.6	262.1	261.6	261.0
	0.645	262.0				260.7
	0.769	261.5				260.4
	0.894	261.5				260.5
	1.018	261.2				260.6
	1.143	261.4				260.6
	1.267	261.8				261.0
	1.392	261.8				260.9
	1.516	261.6				260.9
	1.640	261.8				261.0
	1.765	261.9				260.9
	1.890	261.7				260.9
	2.014	261.8				261.0
	2.138	261.5				261.0
	2.263	261.6				261.0
	2.387	261.7				260.9
	2.512	261.7				261.0
	2.636	261.4				260.7
	2.761	261.2				260.5
	2.885	261.0				260.0
	3.010	260.6	260.7	260.4	260.0	259.6
BASE	3.285	260.5				•
	3.410	259.2				•
	3.534	257.9				257.1
	3.659	257.5				256.8
	3.783	257.5				256.7
	3.907	257.2				256.4

TABLE V (CONT.)

(P_0 = 1407 MM HG. ABS., T_0 = 329.5 °K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6^\circ$ $\beta = 0^\circ$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	272.0				262.1
S	0.068	272.[illegible]				•
P	0.136	271.6				264.2
H	0.204	270.7				•
E	0.305	269.0	267.4	266.3	265.1	263.4
R	0.356	268.1				•
E	0.407	266.6				262.9
	0.455	265.8				
	0.520	264.5	264.0	263.4	262.7	262.4
	0.520	264.5	264.0	263.4	262.7	262.4
	0.645	263.2				262.0
	0.769	262.4				261.7
	0.894	262.3				261.6
C	1.018	262.6				261.9
O	1.143	262.7				261.9
N	1.267	262.9				262.3
E	1.392	262.9				262.5
	1.516	262.9				262.2
	1.640	263.2				262.5
	1.765	263.4				262.4
	1.890	263.3				262.4
	2.014	263.4				262.4
	2.138	263.2				262.5
	2.263	263.2				262.6
	2.387	263.6				262.6
	2.512	263.2				262.2
	2.636	263.0				262.1
	2.761	262.8				262.0
	2.885	262.9				261.2
	3.010	262.8	262.9	262.9	262.3	261.1
	3.285	263.0				•
B	3.410	261.7				•
A	3.534	260.7				258.9
S	3.659	260.2				258.6
E	3.783	259.9				258.5
	3.907	259.6				258.0

TABLE V (CONT.)

(P_0 = 1460 MM HG. ABS., T_0 = 327.2°K, RE_1/METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 15°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	270.1				261.2
S	0.068	270.0				.
P	0.136	269.9				262.5
H	0.204	269.2				.
E	0.305	267.5	266.2	264.5	262.9	262.1
R	0.356	265.7				.
E	0.407	265.2				261.3
	0.455	263.8				.
	0.520	263.0	261.5	261.4	261.4	260.9
	0.520	263.0	261.5	261.4	261.4	260.9
	0.645	261.8				260.2
	0.769	260.9				260.1
	0.894	261.2				260.1
C	1.018	260.9				260.1
O	1.143	261.0				260.3
N	1.267	261.2				260.9
E	1.392	261.4				260.5
	1.516	261.3				260.5
	1.640	261.3				260.6
	1.765	261.4				260.6
	1.890	261.4				260.6
	2.014	261.3				260.9
	2.138	261.3				261.0
	2.263	261.2				260.8
	2.387	261.2				260.5
	2.512	261.3				260.7
	2.636	260.8				260.5
	2.761	260.5				260.1
	2.885	260.3				259.4
	3.010	260.2	261.4	261.4	261.4	259.3
	3.285	260.1				.
B	3.410	258.8				.
A	3.534	258.0				256.6
S	3.659	257.1				256.6
E	3.783	256.9				256.4
	3.907	256.7				256.0

TABLE V (CONT.)

(P_0 = 1407 MM HG. ABS., T_0 = 329.6 °K, RE_1/METER X 10^{-6} = 10.4)

α=6° β=15°

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	272.4				261.3
S	0.068	272.7				•
P	0.136	271.9				263.5
H	0.204	271.0				•
E	0.305	269.1	267.1	266.0	264.4	262.9
R	0.356	267.5				•
E	0.407	266.6				262.1
	0.455	265.3				•
	0.520	264.7	263.4	262.8	262.2	261.6
	0.520	264.7	263.4	262.8	262.2	261.6
	0.645	263.5				261.1
	0.769	263.0				260.8
	0.894	262.7				261.1
C	1.018	262.7				261.5
O	1.143	262.7				261.4
N	1.267	263.3				261.8
E	1.392	263.3				261.7
	1.516	263.2				261.9
	1.640	263.3				261.9
	1.765	263.3				262.0
	1.890	263.3				261.8
	2.014	263.2				261.8
	2.138	263.3				262.1
	2.263	263.2				262.1
	2.387	263.3				262.1
	2.512	263.4				261.8
	2.636	263.1				261.8
	2.761	262.9				261.7
	2.885	262.7				261.4
	3.010	263.0	262.9	262.4	261.8	261.3
	3.285	262.9				•
B	3.410	261.3				•
A	3.534	260.0				258.7
S	3.659	259.5				258.7
E	3.783	259.2				258.4
	3.907	258.7				257.6

TABLE V (CONT.)

(P_0 = 1458 MM HG. ABS., T_0 = 327.2 °K, RE$_1$/METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 30°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	270.2				261.7
S	0.068	270.6				•
P	0.136	269.8				263.2
H	0.204	269.7				•
E	0.305	267.2	266.9	265.2	263.8	262.4
R	0.356	266.3				•
E	0.407	264.9				261.9
	0.495	264.2				•
	0.520	262.5	263.0	262.5	261.9	261.3
	0.520	262.5	263.0	262.5	261.9	261.3
	0.645	261.7				260.7
	0.769	261.3				260.7
	0.894	261.4				260.6
C	1.018	261.3				[illegible]0.9
O	1.143	261.7				260.8
N	1.267	261.8				260.8
E	1.392	261.7				261.0
	1.516	261.8				260.9
	1.640	261.9				260.9
	1.765	261.9				261.1
	1.890	262.0				260.9
	2.014	261.8				261.0
	2.138	262.0				261.1
	2.263	261.9				261.3
	2.387	261.7				261.0
	2.512	261.5				261.0
	2.636	261.3				261.0
	2.761	261.3				260.8
	2.885	260.7				259.9
	3.010	260.8	261.0	260.8	260.2	259.8
	3.285	260.9				•
B	3.410	259.5				•
A	3.534	258.5				257.4
S	3.659	257.8				257.3
E	3.783	257.9				257.3
	3.907	257.7				256.8

TABLE V (CONT.)

(P_0 = 1407 MM HG. ABS., T_0 = 329.6°K, RE_1/METER X 10^{-6} = 10.6)

$\alpha = 6°$ $\beta = 30°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	272.1				261.7
S	0.068	272.8				•
P	0.136	271.9				264.2
H	0.204	271.5				•
E	0.305	269.2	267.8	266.5	264.6	263.4
R	0.356	268.2				•
E	0.407	267.1				262.7
	0.455	266.0				•
	0.520	264.5	263.8	263.4	262.9	262.2
	0.520	264.5	263.8	263.4	262.9	262.2
	0.645	262.9				262.0
	0.769	262.4				261.4
	0.894	262.3				261.5
C	1.018	262.3				261.6
O	1.143	262.7				262.2
N	1.267	263.0				262.1
E	1.392	262.8				262.1
	1.516	263.0				262.2
	1.640	263.2				262.4
	1.765	263.2				262.5
	1.890	263.1				262.7
	2.014	263.1				262.5
	2.138	263.3				262.5
	2.263	263.4				262.7
	2.387	263.7				262.8
	2.512	264.3				263.4
	2.636	264.7				263.3
	2.761	265.2				263.6
	2.885	265.5				263.2
	3.010	266.4	265.5	264.9	264.0	263.3
	3.285	265.0				•
B	3.410	262.4				•
A	3.534	261.2				259.5
S	3.659	260.1				259.1
E	3.783	259.7				259.0
	3.907	259.3				258.1

TABLE V (CONT.)

(P$_0$ = 1458 MM HG. ABS., T$_0$ = 327.2 °K, RE$_1$ /METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 45°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	270.7				261.8
S	0.068	270.6				•
P	0.136	270.3				263.4
H	0.204	269.4				•
E	0.305	267.8	266.4	265.0	263.7	262.5
R	0.356	265.9				•
E	0.487	265.2				261.7
	0.455	264.0				•
	0.520	263.2	262.9	262.4	262.0	261.2
	0.520	263.2	262.9	262.4	262.0	261.2
	0.645	262.0				260.8
	0.769	261.6				260.3
	0.894	261.3				260.3
C	1.018	261.6				260.6
O	1.143	261.8				260.7
N	1.267	261.8				260.8
E	1.392	261.8				260.8
	1.516	262.0				260.8
	1.640	262.0				261.0
	1.765	261.8				261.0
	1.890	261.7				261.0
	2.014	261.7				261.0
	2.138	261.5				261.0
	2.263	261.5				261.0
	2.387	261.4				261.0
	2.512	261.6				261.0
	2.636	261.2				260.8
	2.761	261.1				260.7
	2.885	260.5				260.0
	3.010	260.7	260.9	260.7	260.5	259.8
	3.285	261.1				•
B	3.410	259.8				•
A	3.534	259.0				257.7
S	3.659	258.4				257.5
E	3.783	258.6				257.4
	3.907	258.1				257.0

TABLE V (CONT.)

(P_0 = 1407 MM HG. ABS., T_0 = 329.5°K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6°$ $\beta = 45°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
SPHERE	0.000	271.5				261.7
	0.068	272.1				•
	0.136	271.5				263.7
	0.204	270.7				•
	0.305	268.6	266.9	265.2	264.1	263.0
	0.356	267.1				•
	0.407	266.3				262.4
	0.455	265.1				•
	0.520	264.0	263.7	263.1	262.2	261.7
CONE	0.520	264.0	263.7	263.1	262.2	261.7
	0.645	262.7				261.4
	0.769	262.1				261.3
	0.894	261.9				261.1
	1.018	262.0				261.4
	1.143	262.1				261.5
	1.267	262.5				261.7
	1.392	262.4				261.7
	1.516	262.5				262.0
	1.640	262.6				262.0
	1.765	262.7				262.0
	1.890	262.5				261.9
	2.014	262.6				261.9
	2.138	262.6				262.1
	2.263	262.8				262.1
	2.387	263.1				262.1
	2.512	263.2				262.5
	2.636	263.6				262.8
	2.761	264.2				262.9
	2.885	264.6				262.5
	3.010	265.9	265.8	265.2	264.4	263.1
BASE	3.285	265.7				•
	3.410	263.0				•
	3.534	261.4				259.6
	3.659	260.6				259.2
	3.783	260.2				259.0
	3.907	259.9				258.4

TABLE V (CONT.)

(P_0 = 1458 MM HG. ABS., T_0 = 327.2°K, RE_1/METER X 10^{-6} = 11.2)

α=6° β=60°

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	270.5				262.0
S	0.068	270.4				•
P	0.136	270.1				263.2
H	0.204	269.5				•
E	0.305	267.2	266.3	264.9	263.4	262.4
R	0.356	265.6				•
E	0.407	264.8				261.7
	0.455	263.9				•
	0.520	263.0	262.6	262.1	261.7	261.1
	0.520	263.0	262.6	262.1	261.7	261.1
	0.645	261.8				260.5
	0.769	261.5				260.4
	0.894	261.1				260.5
C	1.018	261.1				260.6
O	1.143	261.4				260.5
N	1.267	261.3				260.7
E	1.392	261.2				260.7
	1.516	261.3				260.7
	1.640	261.5				260.7
	1.765	261.5				260.8
	1.890	261.4				260.8
	2.014	261.5				260.7
	2.138	261.3				260.7
	2.263	261.2				260.7
	2.387	261.3				260.7
	2.512	261.5				261.1
	2.636	261.4				261.0
	2.761	261.2				260.8
	2.885	261.0				260.2
	3.010	261.3	261.4	261.1	260.5	260.1
	3.285	261.4				•
B	3.410	259.7				•
A	3.534	258.9				257.7
S	3.659	258.7				257.7
E	3.783	258.6				257.5
	3.907	258.5				257.1

TABLE V (CONT.)

(P_0 = 1407 MM HG. ABS., T_0 = 329.5 °K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6°$ $\beta = 60°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	271.5				260.8
S	0.068	272.2				•
P	0.136	271.4				263.1
H	0.204	270.5				•
E	0.305	268.6	266.6	265.4	263.6	262.3
R	0.356	266.6				•
E	0.407	265.9				261.3
	0.455	264.3				•
	0.520	263.7	262.6	261.9	261.5	260.9
	0.520	263.7	262.6	261.9	261.5	260.9
	0.645	262.4				260.4
	0.769	261.7				260.1
	0.894	261.6				260.1
C	1.018	261.5				260.3
O	1.143	261.8				260.3
N	1.267	261.7				260.5
E	1.392	261.6				260.4
	1.516	261.8				260.6
	1.640	261.8				260.6
	1.765	261.9				260.7
	1.890	261.7				260.7
	2.014	261.7				260.7
	2.138	261.8				260.9
	2.263	262.0				261.1
	2.387	262.3				261.2
	2.512	262.9				261.8
	2.636	263.3				262.0
	2.761	264.2				262.6
	2.885	265.1				262.4
	3.010	266.4	265.8	265.0	263.8	262.8
	3.285	264.1				•
B	3.410	262.5				•
A	3.534	260.8				258.7
S	3.659	260.0				258.3
E	3.783	259.6				258.7
	3.907	259.4				257.4

TABLE V (CONT.)

(P_0 = 1458 MM HG. ABS., T_0 = 327.2 °K. RE_1/METER X 10^{-6} = 11.2)

α=6° β=75°

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	270.5				262.2
S	0.068	270.5				•
P	0.136	270.2				262.9
H	0.204	269.0				•
E	0.305	267.0	266.2	265.0	263.5	262.4
R	0.356	265.6				•
E	0.407	264.9				261.8
	0.455	263.8				•
	0.520	262.8	262.8	261.9	261.5	261.0
	0.520	262.8	262.8	261.9	261.5	261.0
	0.645	261.8				260.7
	0.769	261.2				260.4
	0.894	261.0				260.3
C	1.018	260.9				260.3
O	1.143	261.0				260.4
N	1.267	261.1				260.7
E	1.392	261.0				260.5
	1.516	261.1				260.7
	1.640	261.1				261.0
	1.765	261.2				260.8
	1.890	261.2				260.8
	2.014	261.2				260.7
	2.138	261.1				260.7
	2.263	261.1				260.6
	2.387	261.3				260.7
	2.512	261.4				261.0
	2.636	261.7				261.0
	2.761	261.8				260.9
	2.885	262.0				260.7
	3.010	262.8	262.4	262.1	261.3	260.9
	3.285	261.8				•
B	3.410	260.1				•
A	3.534	258.9				257.7
S	3.659	258.5				257.6
E	3.783	258.2				257.7
	3.907	258.2				257.2

TABLE V (CONT.)

(P_0 = 1406 MM HG. ABS., T_0 = 329.5°K, RE_1/METER X 10^{-6} = 10.6)

$\alpha = 6°$ $\beta = 75°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	271.9				261.2
S	0.068	272.0				•
P	0.136	271.8				263.3
H	0.204	270.7				•
E	0.305	268.6	266.9	265.3	263.6	262.6
R	0.356	266.8				•
E	0.407	266.0				261.8
	0.455	264.5				•
	0.520	263.8	263.0	262.1	261.5	261.3
	0.520	263.8	263.0	262.1	261.5	261.3
	0.645	262.4				260.8
	0.769	261.7				260.6
	0.894	261.4				260.5
C	1.018	261.3				260.7
O	1.143	261.7				260.9
N	1.267	261.8				260.5
E	1.392	262.0				260.4
	1.516	261.9				260.5
	1.640	262.0				260.8
	1.765	262.1				260.7
	1.890	261.9				260.9
	2.014	261.7				260.9
	2.138	261.8				261.2
	2.263	261.9				261.2
	2.387	262.9				261.9
	2.512	263.9				262.6
	2.636	264.7				263.2
	2.761	265.7				263.7
	2.885	266.6				263.5
	3.010	267.4	266.9	265.8	264.6	263.5
	3.285	265.7				•
B	3.410	262.9				•
A	3.534	261.0				259.1
S	3.659	260.2				258.6
E	3.783	260.0				258.5
	3.907	259.7				257.7

TABLE V (CONT.)

(P_0 = 1463 MM HG. ABS., T_0 = 327.3 °K, RE_l/METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 90°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	271.1				261.5
S	0.068	270.8				•
P	0.136	270.3				262.5
H	0.204	269.3				•
E	0.305	267.3	266.0	264.9	263.1	261.8
R	0.356	265.7				•
E	0.407	265.0				261.2
	0.455	263.7				•
	0.520	263.0	262.3	261.9	261.4	260.8
	0.520	263.0	262.3	261.9	261.4	260.8
	0.645	262.1				260.3
	0.769	261.4				259.9
	0.894	261.4				259.7
C	1.018	261.3				259.9
O	1.143	261.5				260.2
N	1.267	261.4				260.5
E	1.392	261.3				260.5
	1.516	261.1				260.4
	1.640	261.2				260.7
	1.765	261.0				260.9
	1.890	261.3				261.1
	2.014	261.2				260.9
	2.138	261.2				260.8
	2.263	261.1				260.9
	2.387	261.4				260.8
	2.512	261.6				261.0
	2.636	261.8				260.8
	2.761	262.1				261.3
	2.885	262.3				261.1
	3.010	263.6	263.4	262.9	262.0	261.4
	3.285	263.0				•
B	3.410	260.7				•
A	3.534	259.4				258.1
S	3.659	258.9				257.9
E	3.783	258.8				258.0
	3.907	258.4				257.4

TABLE V (CONT.)

(P_0 = 1406 MM HG. ABS., T_0 = 329.5°K, RE_1/METER X 10^{-6} = 10.6)

$\alpha = 6°$ $\beta = 90°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	272.1				261.6
S	0.068	272.3				•
P	0.136	271.7				266.9
H	0.204	270.8				•
E	0.305	268.7	266.3	265.1	263.8	262.1
R	0.356	266.6				•
E	0.407	265.7				261.3
	0.455	264.3				•
	0.520	263.5	262.5	261.7	261.6	260.8
	0.520	263.5	262.5	261.7	261.6	260.8
	0.645	262.3				260.2
	0.769	261.7				259.9
	0.894	261.5				260.0
C	1.018	261.6				260.1
O	1.143	261.6				260.4
N	1.267	261.7				260.2
E	1.392	261.8				260.4
	1.516	261.8				260.2
	1.640	261.6				260.2
	1.765	261.8				260.7
	1.890	261.9				260.6
	2.014	262.0				260.5
	2.138	262.2				261.1
	2.263	261.6				261.3
	2.387	263.8				261.7
	2.512	265.0				262.7
	2.636	266.0				263.5
	2.761	267.0				263.9
	2.885	267.0				263.2
	3.010	267.3	266.2	265.6	264.2	263.2
	3.285	265.7				•
B	3.410	262.8				•
A	3.534	260.9				258.7
S	3.659	260.1				258.4
E	3.783	259.9				258.3
	3.907	259.5				257.4

TABLE V (CONT.)

(P_0 = 1464 MM HG. ABS., T_0 = 327.5°K, RE_l/METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 105°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	270.7				262.5
S	0.068	270.3				•
P	0.136	270.1				263.3
H	0.204	268.6				•
E	0.305	266.7	266.0	264.9	263.7	262.5
R	0.356	265.0				•
E	0.407	264.3				261.7
	0.455	263.2				•
	0.520	262.4	262.7	262.0	261.4	261.3
	0.520	262.4	262.7	262.0	261.4	261.3
	0.645	261.3				260.6
	0.769	260.8				260.4
	0.894	260.6				260.4
C	1.018	260.5				260.4
O	1.143	260.7				260.4
N	1.267	260.8				260.5
E	1.392	260.9				260.5
	1.516	260.9				260.4
	1.640	261.1				260.5
	1.765	260.9				260.6
	1.890	260.6				260.6
	2.014	•				260.5
	2.138	260.4				260.5
	2.263	260.7				260.5
	2.387	260.9				260.5
	2.512	260.9				260.5
	2.636	261.3				260.7
	2.761	261.7				260.9
	2.885	262.4				260.7
	3.010	263.3	263.2	262.5	261.8	261.1
	3.285	262.7				•
B	3.410	260.6				•
A	3.534	259.3				257.9
S	3.659	258.8				257.7
E	3.783	258.7				257.7
	3.907	258.4				257.1

TABLE V (CONT.)

(P_0 = 1406 MM HG. ABS., T_0 = 329.5°K, RE_1/METER X 10^{-6} = 10.6)

$\alpha = 6°$ $\beta = 105°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	271.9				261.6
S	0.068	271.7				•
P	0.136	271.2				263.3
H	0.204	270.1				•
E	0.305	267.9	266.6	265.2	263.8	262.3
R	0.356	266.4				•
E	0.407	265.5				261.7
	0.455	264.3				•
	0.520	263.5	262.6	262.3	261.7	261.0
	0.520	263.5	262.6	262.3	261.7	261.0
	0.645	262.1				260.5
	0.769	261.3				260.2
	0.894	261.2				260.2
C	1.018	261.2				260.1
O	1.143	261.3				260.3
N	1.267	261.4				260.5
E	1.392	261.4				260.4
	1.516	261.3				260.4
	1.640	261.2				260.8
	1.765	261.5				260.8
	1.890	261.4				260.8
	2.014	261.4				260.7
	2.138	261.7				260.9
	2.263	261.8				261.3
	2.387	263.0				261.7
	2.512	264.4				262.8
	2.636	265.5				263.3
	2.761	266.6				264.0
	2.885	266.7				263.2
	3.010	266.8	266.4	265.2	264.2	263.6
	3.285	265.2				•
B	3.410	262.6				•
A	3.534	260.7				259.0
S	3.659	260.0				258.7
E	3.783	259.8				258.6
	3.907	259.6				257.9

TABLE V (CONT.)

(P_0 = 1464 MM HG. ABS., T_0 = 327.5°K, RE_1/METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 120°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	271.0				262.3
S	0.068	270.6				•
P	0.136	269.8				263.2
H	0.204	268.8				•
E	0.305	266.9	265.8	264.8	263.5	262.2
R	0.356	265.4				•
E	0.407	264.6				261.5
	0.455	263.3				•
	0.520	262.7	262.5	262.2	261.5	261.1
	0.520	262.7	262.5	262.2	261.5	261.1
	0.645	261.7				260.5
	0.769	261.1				260.4
	0.894	260.9				260.3
C	1.018	260.8				260.5
O	1.143	260.8				260.5
N	1.267	260.9				260.7
E	1.392	260.9				260.5
	1.516	260.9				260.5
	1.640	260.9				260.4
	1.765	260.9				260.5
	1.890	260.7				260.4
	2.014	260.6				260.4
	2.138	260.5				260.3
	2.263	260.2				260.3
	2.387	260.6				260.2
	2.512	260.5				260.3
	2.636	260.5				260.2
	2.761	260.9				260.4
	2.885	261.2				260.2
	3.010	262.1	262.2	261.8	261.2	260.4
	3.285	262.3				•
B	3.410	260.3				•
A	3.534	259.1				257.7
S	3.659	258.7				257.6
E	3.783	258.7				257.5
	3.907	258.2				257.0

TABLE V (CONT.)

(P_0 = 1405 MM HG. ABS., T_0 = 329.5°K, RE_1/METER X 10^{-6} = 10.6)

$\alpha = 6°$ $\beta = 120°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	271.9				261.4
S	0.068	271.3				•
P	0.136	271.0				263.0
H	0.204	269.7				•
E	0.305	267.8	266.2	265.0	263.6	262.0
R	0.356	266.2				•
E	0.407	265.3				261.3
	0.455	264.3				•
	0.520	263.5	262.4	261.8	261.6	260.8
	0.520	263.5	262.4	261.8	261.6	260.8
	0.645	262.0				260.5
	0.769	261.5				260.2
	0.894	261.2				260.1
C	1.018	260.8				260.3
O	1.143	261.1				260.3
N	1.267	261.2				260.5
E	1.392	261.0				260.4
	1.516	261.1				260.5
	1.640	261.3				260.5
	1.765	261.4				260.5
	1.890	261.4				260.7
	2.014	261.3				260.6
	2.138	261.3				260.6
	2.263	261.5				260.8
	2.387	262.1				260.9
	2.512	263.1				261.7
	2.636	264.0				262.5
	2.761	265.2				263.2
	2.885	265.9				262.7
	3.010	266.5	266.1	264.9	263.7	263.0
	3.285	264.8				•
B	3.410	262.2				•
A	3.534	260.5				258.4
S	3.659	259.9				258.2
E	3.783	259.6				258.1
	3.907	259.2				257.4

TABLE V (CONT.)

(P_0 = 1464 MM HG. ABS., T_0 = 327.5°K, RE_1/METER X 10^{-6} = 11.2)

$\alpha = 6°$ $\beta = 135°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	270.8				262.0
S	0.068	270.0				•
P	0.136	269.7				263.0
H	0.204	268.2				•
E	0.305	266.3	265.2	264.3	262.9	262.2
R	0.356	265.0				•
E	0.407	264.5				261.6
	0.455	263.0				•
	0.520	262.4	262.1	261.6	261.3	260.8
	0.520	262.4	262.1	261.6	261.3	260.8
	0.645	261.2				260.5
	0.769	260.5				260.2
	0.894	260.3				260.1
C	1.018	260.3				260.2
O	1.143	260.3				260.2
N	1.267	260.3				260.4
E	1.392	260.5				260.2
	1.516	260.3				260.1
	1.640	260.2				260.4
	1.765	260.2				260.2
	1.890	260.2				260.2
	2.014	260.0				260.1
	2.138	259.8				260.0
	2.263	259.8				260.1
	2.387	260.0				259.9
	2.512	260.0				259.9
	2.636	259.7				259.7
	2.761	260.0				259.8
	2.885	260.0				259.5
	3.010	260.5	260.9	260.5	260.2	259.5
	3.285	261.1				•
B	3.410	259.8				•
A	3.534	258.7				257.7
S	3.659	258.2				257.5
E	3.783	258.0				257.3
	3.907	258.0				256.9

TABLE V (CONT.)

(P_0 = 1405 MM HG. ABS., T_0 = 329.4°K, RE_1/METER X 10^{-6} = 10.6)

$\alpha = 6°$ $\beta = 135°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	272.7				261.5
S	0.068	271.4				•
P	0.136	271.2				263.4
H	0.204	269.6				•
E	0.305	267.8	266.1	265.3	263.6	262.5
R	0.356	265.9				•
E	0.407	265.2				261.7
	0.455	263.9				•
	0.520	263.3	262.6	262.2	261.6	261.0
	0.520	263.3	262.6	262.2	261.6	261.0
	0.645	262.1				260.7
	0.769	261.4				260.5
	0.894	260.9				260.5
C	1.018	260.8				260.6
O	1.143	260.9				260.5
N	1.267	260.9				260.8
E	1.392	260.8				260.3
	1.516	260.8				260.5
	1.640	260.9				260.9
	1.765	260.8				260.5
	1.890	260.8				260.5
	2.014	260.7				260.8
	2.138	260.7				260.7
	2.263	261.1				260.9
	2.387	261.2				261.0
	2.512	261.7				261.3
	2.636	262.3				261.5
	2.761	263.4				262.1
	2.885	264.4				261.8
	3.010	265.5	265.1	264.3	263.3	262.5
	3.285	264.5				•
B	3.410	262.0				•
A	3.534	260.5				258.6
S	3.659	259.7				258.3
E	3.783	259.3				258.0
	3.907	258.9				257.5

TABLE V (CONT.)

(P_0 = 1404 MM HG. ABS., T_0 = 328.4°K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6°$ $\beta = 150°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	272.3				261.7
S	0.068	271.5				•
P	0.136	271.1				263.7
H	0.204	269.8				•
E	0.305	267.8	266.6	265.4	263.9	262.8
R	0.356	265.9				•
E	0.407	265.4				262.2
	0.455	264.2				•
	0.520	263.4	262.9	262.3	261.9	261.2
	0.520	263.4	262.9	262.3	261.9	261.2
	0.645	262.1				260.8
	0.769	261.6				260.8
	0.894	261.3				260.7
C	1.018	261.3				260.8
O	1.143	261.2				260.8
N	1.267	261.3				261.0
E	1.392	261.2				260.9
	1.516	261.0				260.7
	1.640	261.1				260.8
	1.765	261.0				260.8
	1.890	261.0				260.8
	2.014	260.9				260.9
	2.138	260.9				260.8
	2.263	260.9				260.8
	2.387	261.2				260.9
	2.512	261.3				261.2
	2.636	261.5				261.3
	2.761	262.4				261.5
	2.885	263.2				261.5
	3.010	264.2	264.2	263.5	262.7	262.0
	3.285	263.8				•
B	3.410	261.7				•
A	3.534	260.4				258.5
S	3.659	259.7				258.4
E	3.783	259.5				258.3
	3.907	259.2				257.9

TABLE V (CONT.)

(P_0 = 1405 MM HG. ABS., T_0 = 329.2 °K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6°$ $\beta = 150°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	272.7				262.0
S	0.068	271.6				•
P	0.136	271.5				263.7
H	0.204	269.9				•
E	0.305	268.0	266.4	265.4	264.1	262.7
R	0.356	266.1				•
E	0.407	265.4				262.0
	0.455	263.9				•
	0.520	263.3	263.2	262.7	262.5	261.3
	0.520	263.3	263.2	262.7	262.5	261.3
	0.645	262.1				260.9
	0.769	261.8				260.5
	0.894	261.6				260.6
C	1.018	261.4				260.6
O	1.143	261.4				260.6
N	1.267	261.3				260.8
E	1.392	261.1				260.7
	1.516	261.0				260.8
	1.640	261.2				260.7
	1.765	261.1				260.7
	1.890	261.1				260.6
	2.014	261.1				260.6
	2.138	260.8				260.7
	2.263	260.8				260.9
	2.387	261.3				261.0
	2.512	261.5				261.1
	2.636	261.7				261.2
	2.761	262.6				261.6
	2.885	263.5				261.5
	3.010	264.7	264.7	263.9	263.0	262.2
	3.285	264.4				•
B	3.410	262.1				•
A	3.534	260.7				259.1
S	3.659	260.1				258.9
E	3.783	259.9				258.9
	3.907	259.6				258.0

TABLE V (CONT.)

(P_0 = 1404 MM HG. ABS., T_0 = 328.8°K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6°$ $\beta = 165°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	272.4				261.4
S	0.068	271.4				•
P	0.136	270.8				263.6
H	0.204	269.5				•
E	0.305	267.2	266.6	265.4	264.1	262.8
R	0.356	266.2				•
E	0.407	264.9				261.7
	0.455	263.9				•
	0.520	263.1	263.1	262.5	262.1	261.0
	0.520	263.1	263.1	262.5	262.1	261.0
	0.645	261.9				260.6
	0.769	261.4				260.5
	0.894	261.3				260.5
C	1.018	260.8				260.5
O	1.143	260.9				260.5
N	1.267	261.0				260.7
E	1.392	261.0				260.6
	1.516	260.9				260.5
	1.640	260.8				260.8
	1.765	260.7				260.7
	1.890	260.6				260.8
	2.014	260.6				260.5
	2.138	260.5				260.6
	2.263	260.3				260.6
	2.387	260.4				260.6
	2.512	260.5				260.7
	2.636	260.5				260.7
	2.761	260.6				260.7
	2.885	260.8				260.7
	3.010	261.7	262.1	261.9	261.2	260.8
	3.285	262.4				•
B	3.410	261.1				•
A	3.534	260.0				258.5
S	3.659	259.7				258.5
E	3.783	259.5				258.5
	3.907	259.6				258.1

TABLE V (CONT.)

(P_0 = 1404 MM HG. ABS., T_0 = 329.2°K, RE_1/METER X 10^{-6} = 10.7)

α = 6° β = 165°

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	272.4				260.9
S	0.068	271.4				•
P	0.136	270.7				263.0
H	0.204	269.2				•
E	0.305	267.6	266.2	265.2	263.4	261.9
R	0.356	265.8				•
E	0.407	265.1				261.2
	0.455	263.6				•
	0.520	263.0	262.6	262.1	261.8	260.8
	0.520	263.0	262.6	262.1	261.8	260.8
	0.645	262.1				260.3
	0.769	261.5				260.6
	0.894	261.3				260.6
C	1.018	260.9				260.9
O	1.143	260.9				261.0
N	1.267	260.9				261.1
E	1.392	260.8				260.9
	1.516	260.7				261.2
	1.640	260.7				261.3
	1.765	260.7				261.2
	1.890	260.5				261.2
	2.014	260.3				261.0
	2.138	260.2				261.0
	2.263	259.9				260.9
	2.387	260.4				260.9
	2.512	260.6				260.9
	2.636	260.4				260.9
	2.761	260.7				260.9
	2.885	260.9				260.9
	3.010	262.0	262.2	262.0	261.6	261.2
	3.285	262.9				•
B	3.410	261.3				•
A	3.534	260.3				258.7
S	3.659	260.0				258.7
E	3.783	259.9				258.8
	3.907	259.6				258.3

TABLE V (CONT.)

(P_0 = 1404 MM HG. ABS., T_0 = 328.9°K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6°$ $\beta = 180°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	272.5				261.3
S	0.068	271.5				•
P	0.136	271.0				263.7
H	0.204	269.5				•
E	0.305	267.3	266.7	265.2	263.8	262.7
R	0.356	265.8				•
E	0.407	264.9				262.0
	0.455	263.9				•
	0.520	262.9	262.7	262.3	261.8	261.3
	0.520	262.9	262.7	262.3	261.8	261.3
	0.645	261.8				260.9
	0.769	261.2				260.6
	0.894	261.0				260.8
C	1.018	260.8				260.8
O	1.143	260.9				260.8
N	1.267	261.0				260.8
E	1.392	260.7				260.8
	1.516	260.6				260.8
	1.640	260.6				260.6
	1.765	260.6				260.7
	1.890	260.4				260.7
	2.014	260.3				260.5
	2.138	260.2				260.5
	2.263	260.0				260.5
	2.387	260.1				260.4
	2.512	259.9				260.3
	2.636	260.1				260.3
	2.761	260.1				260.3
	2.885	260.2				260.2
	3.010	260.6	261.1	260.9	260.5	260.3
	3.285	261.8				•
B	3.410	260.7				•
A	3.534	259.8				258.5
S	3.659	259.6				258.4
E	3.783	259.6				258.4
	3.907	259.5				258.0

TABLE V (CONT.)

(P_0 = 1404 MM HG. ABS., T_0 = 329.2 °K, RE_1/METER X 10^{-6} = 10.7)

$\alpha = 6°$ $\beta = 180°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	272.3				261.3
S	0.068	271.5				.
P	0.136	270.9				263.4
H	0.204	269.4				.
E	0.305	267.5	266.0	265.2	263.8	262.4
R	0.356	266.1				.
E	0.407	264.8				262.1
	0.455	263.9				.
	0.520	262.9	262.6	262.3	261.9	261.8
	0.520	262.9	262.6	262.3	261.9	261.8
	0.645	261.9				261.3
	0.769	261.5				261.0
	0.894	261.3				260.9
C	1.018	261.3				260.9
O	1.143	261.3				261.1
N	1.267	260.9				261.0
E	1.392	261.0				260.9
	1.516	261.0				260.9
	1.640	261.0				261.0
	1.765	260.9				261.0
	1.890	260.8				261.0
	2.014	260.5				260.8
	2.138	260.6				260.9
	2.263	260.3				260.6
	2.387	260.5				260.6
	2.512	260.5				260.6
	2.636	260.5				260.6
	2.761	260.5				260.7
	2.885	260.6				260.3
	3.010	261.0	261.1	261.0	260.8	260.5
	3.285	262.2				.
B	3.410	261.1				.
A	3.534	260.3				258.7
S	3.659	259.9				258.8
E	3.783	259.9				258.9
	3.907	259.8				258.3

TABLE VI

LOCAL TEMPERATURE DISTRIBUTION ON THE SPHERE-CONE MODEL AT $M_1 = 4.84$

(P_0 = 2213 MM HG. ABS., T_0 = 320.0°K, RE_1/METER X 10^{-6} = 8.4)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	247.5				232.2
S	0.068	247.4				
P	0.136	246.0				232.4
H	0.204	244.3				
E	0.305	240.9	238.5	236.3	233.4	230.9
R	0.356	238.7				
E	0.407	236.6				230.1
	0.455	234.9				
	0.520	233.1	232.3	231.3	230.4	229.2
	0.520	233.1	232.3	231.3	230.4	229.2
	0.645	231.3				228.5
	0.769	230.7				228.4
	0.894	230.3				228.4
C	1.018	230.2				228.5
O	1.143	230.3				228.6
N	1.267	230.4				228.9
E	1.392	230.5				229.1
	1.516	230.8				229.4
	1.640	231.1				229.7
	1.765	231.3				230.1
	1.890	231.4				230.4
	2.014	231.5				230.5
	2.138	231.7				230.8
	2.263	231.7				230.7
	2.387	232.0				230.9
	2.512	231.7				230.6
	2.636	231.8				230.9
	2.761	231.7				230.8
	2.885	231.5				230.6
	3.010	231.3		230.7	230.5	230.2
	3.285	230.5				
B	3.410	229.9				
A	3.534	229.2				228.5
S	3.659	228.8				228.5
E	3.783	245.5				228.0
	3.907					227.6

TABLE VI (CONT.)

(P_0 = 2228 MM HG. ABS., T_0 = 320.0°K, RE_1/METER X 10^{-6} = 8.5)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	247.2				232.4
S	0.068	247.4				
P	0.136	245.7				232.5
H	0.204	244.7				
E	0.305	240.5	238.8	236.5	233.9	231.0
R	0.356	239.2				
E	0.407	236.3				230.1
	0.455	235.4				
	0.520	232.8	232.2	231.3	230.2	229.1
	0.520	232.8	232.2	231.3	230.2	229.1
	0.645	231.0				228.3
	0.769	230.5				228.0
	0.894	230.2				228.2
C	1.018	230.0				228.3
O	1.143	230.1				228.2
N	1.267	230.2				228.6
E	1.392	230.4				228.5
	1.516	230.5				228.9
	1.640	231.0				229.2
	1.765	231.1				229.8
	1.890	231.3				230.1
	2.014	231.2				230.3
	2.138	231.7				230.5
	2.263	231.6				230.6
	2.387	231.9				230.7
	2.512	231.7				230.8
	2.636	231.8				230.6
	2.761	231.6				230.6
	2.885	231.4				230.5
	3.010	231.3		230.6	230.3	230.0
	3.285	230.4				
B	3.410	229.8				
A	3.534	229.1				228.4
S	3.659					228.4
E	3.783	228.5				227.7
	3.907					227.3

TABLE VI (CONT.)

(P_0 = 2222 MM HG. ABS., T_0 = 320.0°K, RE_1/METER X 10^{-6} = 8.4)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K	THROUGH THE WALL T °K			INSIDE SURFACE T °K
	0.000	247.2				232.4
S	0.068	247.5				
P	0.136	245.8				232.5
H	0.204	244.5				
E	0.305	240.6	238.5	236.2	233.6	231.0
R	0.356	238.8				
E	0.407	236.4				230.1
	0.455	235.1				
	0.520	233.0	232.3	231.5	230.5	229.2
	0.520	233.0	232.3	231.5	230.5	229.2
	0.645	231.2				228.5
	0.769	230.4				228.2
	0.894	230.2				228.5
C	1.018	230.1				228.6
O	1.143	230.2				228.7
N	1.267	230.2				229.0
E	1.392	230.4				229.0
	1.516	230.5				229.4
	1.640	231.0				229.6
	1.765	231.2				229.9
	1.890	231.3				230.4
	2.014	231.4				230.5
	2.138	231.6				230.8
	2.263	231.7				230.7
	2.387	231.9				230.8
	2.512	231.6				230.7
	2.636	231.7				230.8
	2.761	231.6				230.8
	2.885	231.5				230.5
	3.010	231.3		230.7	230.6	230.2
	3.285	230.2				
B	3.410	229.8				
A	3.534	229.3				228.5
S	3.659					228.4
E	3.783	228.5				227.8
	3.907					227.6

TABLE VI (CONT.)

(P_0 = 2004 MM HG. ABS., T_0 = 321.0°K, RE_1/METER X 10^{-6} = 7.6)

$\alpha = 0°$

	S/R	OUTSIDE SURFACE T °K		THROUGH THE WALL T °K		INSIDE SURFACE T °K
	0.000	236.6				219.0
S	0.068	235.7				
P	0.136	235.1				219.6
H	0.204	233.2				
E	0.305	230.0	226.8	224.3	221.3	218.9
R	0.356	227.3				
E	0.407	225.4				217.7
	0.455	223.2				
	0.520	221.2	219.1	218.1	217.1	216.0
	0.520	221.2	219.1	218.1	217.1	216.0
	0.645	218.8				214.9
	0.769	218.0				214.8
	0.894	217.6				214.8
C	1.018	217.5				214.9
O	1.143	217.6				215.0
N	1.267	217.8				215.2
E	1.392	217.9				215.4
	1.516	218.1				215.5
	1.640	218.2				215.6
	1.765	218.3				215.7
	1.890	218.3				215.9
	2.014	218.4				216.0
	2.138	218.3				216.0
	2.263	218.3				216.1
	2.387	218.2				216.1
	2.512	218.1				216.1
	2.636	217.9				216.0
	2.761	217.8				215.9
	2.885	217.6				215.6
	3.010	217.4	216.9	216.3	215.8	215.2
	3.285	217.8				
B	3.410					
A	3.534	213.5				212.1
S	3.659	212.6				211.2
E	3.783	211.8				210.7
	3.907	211.4				210.0

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

(P_0 = 2233 MM HG. ABS., T_0 = 320.0°K, RE_1/METER X 10^{-6} = 8.5)

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	β°	T_c°K	T_m°K	ΔT°K	T_c°K	T_m°K	ΔT°K
0.000	0	245.1	245.0	1.0 -1	228.3	227.8	4.2 -1
	15	245.1	245.0	1.2 -1	228.3	227.8	4.2 -1
	30	245.1	244.4	6.6 -1	228.3	228.3	3.0 -3
	45	245.1	245.2	-7.2 -2	228.3	228.4	-7.7 -2
	60	245.1	244.7	4.2 -1	228.3	228.1	1.7 -1
	75	245.1			228.3		
	90	245.1	245.2	-8.2 -2	228.3	228.5	-2.3 -1
	105	245.1	245.3	-2.6 -1	228.3	228.6	-3.0 -1
	120	245.1	245.8	-6.9 -1	228.3	228.8	-5.2 -1
	135	245.1	245.7	-5.7 -1	228.3	228.6	-3.6 -1
	150	245.1	245.0	3.6 -2	228.3	227.5	7.8 -1
	165	245.1	244.6	4.4 -1	228.3	228.2	1.2 -1
	180	245.1	244.8	3.0 -1	228.3	227.9	3.5 -1
0.068	0	245.1	245.3	-2.3 -1			
	15	245.1	244.9	2.2 -1			
	30	245.0	244.9	1.0 -1			
	45	245.0	244.9	1.0 -1			
	60	244.9	245.0	-5.9 -2			
	75	244.8					
	90	244.8	244.7	4.3 -2			
	105	244.7	245.1	-3.3 -1			
	120	244.7	245.1	-4.7 -1			
	135	244.6	245.5	-8.7 -1			
	150	244.5	243.8	7.0 -1			
	165	244.5	243.9	5.6 -1			
	180	244.4	244.3	1.8 -1			
0.136	0	244.7	244.8	-1.4 -1	229.5	229.6	-1.3 -1
	15	244.6	244.7	-1.5 -1	229.4	229.4	7.2 -2
	30	244.4	244.1	3.1 -1	229.4	229.4	-2.3 -2
	45	244.2	244.3	-7.6 -2	229.3	229.5	-1.1 -1
	60	244.0	243.8	1.5 -1	229.3	229.1	1.9 -1
	75	243.8			229.2		
	90	243.6	243.6	-1.5 -2	229.2	229.1	6.6 -2
	105	243.4	243.4	-7.6 -3	229.2	229.1	5.5 -2
	120	243.2	243.6	-3.7 -1	229.1	229.5	-3.6 -1
	135	243.0	243.4	-4.1 -1	229.1	229.3	-2.7 -1
	150	242.8	242.5	3.1 -1	229.0	228.9	1.5 -1
	165	242.6	242.4	2.5 -1	229.0	226.7	2.3 -1
	180	242.5	242.4	5.7 -2	228.9	228.4	5.4 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, FIRST SET

S/R	β°	OUTSIDE SURFACE T_c °K	OUTSIDE SURFACE T_m °K	OUTSIDE SURFACE ΔT °K	INSIDE SURFACE T_c °K	INSIDE SURFACE T_m °K	INSIDE SURFACE ΔT °K
0.204	0	243.6	243.1	5.1 -1			
	15	243.4	244.0	-5.2 -1			
	30	243.1	242.7	3.6 -1			
	45	242.8	242.4	4.3 -1			
	60	242.5	242.3	1.3 -1			
	75	242.2					
	90	241.8	241.7	1.0 -1			
	105	241.5	241.8	-2.6 -1			
	120	241.2	241.5	-3.0 -1			
	135	240.9	241.7	-7.7 -1			
	150	240.6	240.0	5.3 -1			
	165	240.2	239.9	2.9 -1			
	180	240.0	240.4	-3.7 -1			
0.305	0	239.9	239.9	7.0 -2	228.6	228.5	1.1 -1
	15	239.7	239.7	9.3 -3	228.5	228.5	5.8 -3
	30	239.3	239.2	1.6 -1	228.4	228.5	-1.0 -1
	45	238.9	239.2	-2.0 -1	228.3	228.2	1.4 -1
	60	238.6	238.4	1.3 -1	228.2	228.1	8.1 -2
	75	238.2			228.1		
	90	237.8	237.8	1.9 -2	228.0	227.9	7.0 -2
	105	237.5	237.4	7.2 -2	227.9	227.9	2.2 -2
	120	237.1	237.4	-2.9 -1	227.8	228.1	-3.1 -1
	135	236.7	237.0	-2.7 -1	227.7	228.0	-2.6 -1
	150	236.4	236.2	1.8 -1	227.6	227.5	1.4 -1
	165	236.0	235.8	1.9 -1	227.5	227.3	2.0 -1
	180	235.7	235.8	9.8 -2	227.4	227.2	2.0 -1
0.356	0	237.6	237.5	9.8 -2			
	15	237.3	237.2	1.8 -1			
	30	237.0	237.0	-4.9 -2			
	45	236.6	236.6	5.7 -2			
	60	236.2	236.3	-8.2 -2			
	75	235.9					
	90	235.5	235.4	1.2 -1			
	105	235.2	235.3	-1.3 -1			
	120	234.8	235.0	-1.9 -1			
	135	234.4	235.0	-5.9 -1			
	150	234.1	233.6	4.4 -1			
	165	233.7	233.4	2.5 -1			
	180	233.5	233.7	-2.4 -1			

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

S/R	$\beta°$	OUTSIDE SURFACE T_c °K	OUTSIDE SURFACE T_m °K	OUTSIDE SURFACE ΔT °K	INSIDE SURFACE T_c °K	INSIDE SURFACE T_m °K	INSIDE SURFACE ΔT °K
0.407	0	235.0	235.2	-1.7 -1	227.3	227.5	-1.5 -1
	15	234.8	235.0	-2.1 -1	227.2	227.2	3.5 -2
	30	234.5	234.0	5.0 -1	227.1	227.3	-2.4 -1
	45	234.2	234.4	-1.7 -1	227.0	226.9	1.2 -1
	60	233.9	234.0	-9.8 -2	226.8	226.8	6.8 -2
	75	233.5			226.7		
	90	233.2	233.1	8.8 -2	226.6	226.6	5.8 -3
	105	232.9	232.8	8.8 -2	226.5	226.4	3.3 -2
	120	232.6	232.8	-2.6 -1	226.4	226.6	-2.0 -1
	135	232.3	232.5	-2.3 -1	226.2	226.5	-2.3 -1
	150	231.9	231.8	1.2 -1	226.1	226.2	-1.0 -1
	165	231.6	231.4	1.7 -1	226.0	225.9	6.0 -2
	180	231.4	231.4	2.1 -2	225.9	225.9	1.1 -2
0.455	0	233.3	233.4	-6.2 -2			
	15	233.1	232.8	3.4 -1			
	30	232.8	233.0	-2.0 -1			
	45	232.5	232.5	3.2 -2			
	60	232.2	232.3	-1.3 -1			
	75	231.9					
	90	231.6	231.4	1.9 -1			
	105	231.3	231.4	-1.1 -1			
	120	230.9	231.2	-2.6 -1			
	135	230.6	231.2	-5.2 -1			
	150	230.3	229.9	3.8 -1			
	165	230.0	229.7	2.8 -1			
	180	229.8	230.0	1.9 -1			
0.520	0	231.1	231.2	-6.1 -2	226.3	226.4	-8.9 -3
	15	230.9	230.9	2.4 -2	226.3	226.2	1.2 -2
	30	230.6	230.8	-1.5 -1	226.1	226.2	-1.1 -1
	45	230.3	230.4	-2.0 -2	226.0	226.0	8.4 -3
	60	230.0	229.9	8.2 -2	225.8	225.8	1.5 -2
	75	229.7			225.7		
	90	229.4	229.3	1.7 -1	225.5	225.6	-5.6 -2
	105	229.1	228.9	1.7 -1	225.4	225.5	-1.1 -1
	120	228.8	229.0	-1.6 -1	225.2	225.5	-2.9 -1
	135	228.5	228.7	-1.9 -1	225.1	225.5	-4.0 -1
	150	228.2	228.1	8.0 -2	224.9	225.0	-9.7 -2
	165	227.9	227.9	-1.5 -3	224.8	224.8	-4.0 -2
	180	227.7	227.8	-8.4 -2	224.7	224.9	-2.3 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, FIRST SET

S/R	β°	OUTSIDE SURFACE T_c °K	T_m °K	ΔT °K	INSIDE SURFACE T_c °K	T_m °K	ΔT °K
0.645	0	229.0	228.9	8.4 -2	225.7	225.7	-1.0 -2
	15	228.8	229.1	-3.1 -1	225.6	225.6	2.1 -2
	30	228.5	228.4	5.9 -2	225.4	225.5	-3.2 -2
	45	228.2	228.2	5.8 -2	225.3	225.3	2.1 -2
	60	227.9	227.8	1.5 -1	225.1	225.1	-4.4 -3
	75	227.6			225.0		
	90	227.3	227.1	2.4 -1	224.8	224.8	2.3 -2
	105	227.1	227.0	5.3 -2	224.7	224.7	-8.1 -2
	120	226.8	226.9	-1.3 -1	224.5	224.6	-1.1 -1
	135	226.5	226.4	3.3 -2	224.3	224.1	2.6 -1
	150	226.2	226.3	-6.9 -2	224.2	224.2	-3.9 -2
	165	225.9	226.0	-8.7 -2	224.0	224.1	-5.9 -2
	180	225.7	226.2	-4.6 -1	223.9	224.2	-2.6 -1
0.769	0	228.0	228.1	-6.3 -2	225.4	225.3	6.6 -2
	15	227.9	227.9	-2.6 -2	225.3	225.1	1.3 -1
	30	227.6	227.6	-3.9 -2	225.1	225.0	1.0 -1
	45	227.4	227.5	-9.5 -2	225.0	225.0	2.7 -2
	60	227.1	227.0	1.2 -1	224.8	224.5	3.0 -1
	75	226.9			224.7		
	90	226.6	226.4	1.9 -1	224.5	224.3	2.5 -1
	105	226.4	226.3	3.3 -2	224.4	224.3	1.1 -1
	120	226.1	226.2	-6.3 -2	224.2	224.1	1.4 -1
	135	225.9	226.1	-2.1 -1	224.1	224.2	-8.4 -2
	150	225.6	225.6	1.3 -2	223.9	223.7	2.2 -1
	165	225.4	225.3	6.8 -2	223.8	223.6	1.7 -1
	180	225.2	225.2	3.7 -3	223.7	223.4	2.6 -1
0.894	0	227.5	227.7	-1.9 -1	225.3	225.4	-5.2 -2
	15	227.3	227.3	3.0 -2	225.2	225.2	7.9 -3
	30	227.1	227.2	-7.2 -2	225.1	225.1	-5.3 -2
	45	226.8	227.0	-1.0 -1	224.9	225.0	-4.6 -2
	60	226.6	226.5	7.7 -2	224.7	224.6	9.3 -2
	75	226.4			224.6		
	90	226.1	225.9	1.7 -1	224.4	224.3	1.5 -1
	105	225.9	225.8	3.9 -2	224.3	224.3	-2.3 -2
	120	225.6	225.7	-1.2 -2	224.1	224.1	-5.1 -2
	135	225.4	225.6	-1.8 -1	223.9	224.2	-2.6 -1
	150	225.2	225.1	3.5 -2	223.8	223.6	1.1 -1
	165	224.9	224.9	1.7 -2	223.6	223.5	6.8 -2
	180	224.8	224.7	6.1 -2	223.5	223.4	1.2 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, FIRST SET

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	β°	T_c°K	T_m°K	ΔT °K	T_c°K	T_m°K	ΔT °K
1.018	0	227.4	227.5	-1.4 -1	225.4	225.4	-8.3 -2
	15	227.2	227.2	-1.8 -2	225.2	225.3	-1.5 -2
	30	226.9	227.0	-7.6 -2	225.1	225.0	2.8 -2
	45	226.7	226.7	1.1 -2	224.9	225.0	-6.3 -2
	60	226.4	226.4	9.7 -3	224.7	224.7	4.6 -2
	75	226.1			224.5		
	90	225.9	225.7	1.9 -1	224.4	224.2	1.6 -1
	105	225.6	225.6	3.7 -2	224.2	224.2	-4.4 -2
	120	225.4	225.4	-2.0 -2	224.0	224.1	-8.5 -2
	135	225.1	225.3	-2.1 -1	223.8	224.0	-1.9 -1
	150	224.8	224.8	6.5 -2	223.6	223.6	6.8 -2
	165	224.6	224.6	7.5 -3	223.5	223.4	9.4 -2
	180	224.4	224.3	7.0 -2	223.4	223.3	9.4 -2
1.143	0	227.3	227.4	-1.5 -1	225.4	225.4	-2.1 -2
	15	227.1	227.2	-8.8 -2	225.3	225.3	3.7 -2
	30	226.8	226.9	-1.6 -1	225.1	225.1	-1.3 -3
	45	226.5	226.6	-4.7 -2	224.9	225.0	-3.9 -2
	60	226.2	226.4	-1.3 -1	224.7	224.7	-2.8 -2
	75	225.9			224.5		
	90	225.7	225.5	1.3 -1	224.3	224.2	1.3 -1
	105	225.4	225.4	-4.3 -2	224.1	224.2	-9.7 -3
	120	225.1	225.2	-1.0 -1	224.0	224.0	-4.8 -2
	135	224.8	225.1	-2.8 -1	223.8	224.0	-2.2 -1
	150	224.5	224.5	4.7 -2	223.6	223.4	1.2 -1
	165	224.3	224.3	-1.3 -2	223.4	223.3	5.4 -2
	180	224.1	224.1	-3.0 -2	223.3	223.5	-2.7 -1
1.267	0	227.2	227.3	-9.0 -2	225.5	225.4	1.4 -1
	15	227.0	226.9	5.6 -2	225.4	225.3	1.2 -1
	30	226.7	226.7	-4.5 -2	225.2	225.2	1.5 -2
	45	226.4	226.4	4.5 -2	225.0	224.8	2.0 -1
	60	226.1	226.2	-1.3 -1	224.7	224.7	3.4 -2
	75	225.8			224.5		
	90	225.5	225.4	1.5 -1	224.3	224.1	2.7 -1
	105	225.2	225.3	-4.6 -2	224.1	224.0	1.3 -1
	120	225.0	225.0	-1.2 -2	223.9	223.8	8.9 -2
	135	224.7	224.8	-1.4 -1	223.7	223.8	-1.0 -1
	150	224.4	224.2	1.3 -1	223.5	223.3	2.2 -1
	165	224.1	224.1	-1.3 -2	223.3	223.2	1.1 -1
	180	223.9	223.9	-2.1 -3	223.1	223.0	1.8 -1

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	$\beta°$	T_c°K	T_m°K	ΔT °K	T_c°K	T_m°K	ΔT °K
1.392	0	227.1	227.0	1.3 -1	225.7	224.2	1.4 0
	15	227.0	226.6	3.0 -1	225.5	224.1	1.4 0
	30	226.7	226.5	1.3 -1	225.3	224.2	1.1 0
	45	226.4	226.2	2.1 -1	225.1	223.8	1.3 0
	60	226.1	226.0	9.2 -2	224.8	224.0	8.5 -1
	75	225.8			224.6		
	90	225.5	225.1	4.3 -1	224.4	223.3	1.0 0
	105	225.2	225.0	1.9 -1	224.1	223.2	9.1 -1
	120	224.9	224.7	2.2 -1	223.9	223.1	7.9 -1
	135	224.6	224.6	1.2 -3	223.7	223.2	4.6 -1
	150	224.3	223.9	4.0 -1	223.4	222.5	9.0 -1
	165	224.0	223.9	1.7 -1	223.2	222.5	6.8 -1
	180	223.8	223.6	2.5 -1	223.0	222.3	7.5 -1
1.516	0	227.4	227.1	2.5 -1	225.9	224.7	1.1 0
	15	227.1	226.8	3.1 -1	225.7	224.6	1.0 0
	30	226.8	226.6	2.1 -1	225.4	224.6	8.7 -1
	45	226.5	226.2	3.6 -1	225.2	224.3	9.3 -1
	60	226.2	226.1	1.4 -1	224.9	224.2	7.3 -1
	75	225.9			224.7		
	90	225.6	225.1	4.8 -1	224.4	223.4	9.8 -1
	105	225.3	225.0	2.8 -1	224.2	223.4	7.2 -1
	120	224.9	224.6	3.0 -1	223.9	223.2	6.5 -1
	135	224.6	224.5	1.2 -1	223.6	223.3	3.4 -1
	150	224.3	223.9	4.0 -1	223.4	222.7	7.1 -1
	165	224.0	223.7	2.4 -1	223.1	222.6	5.3 -1
	180	223.8	223.5	3.0 -1	223.0	222.4	5.7 -1
1.640	0	227.8	227.9	-8.2 -2	226.1	225.8	3.4 -1
	15	227.5	227.5	5.2 -2	225.9	225.6	3.4 -1
	30	227.2	227.2	-4.9 -2	225.6	225.5	1.5 -1
	45	226.8	226.9	-1.9 -2	225.4	225.2	2.1 -1
	60	226.5	226.6	-8.5 -2	225.1	225.1	-1.8 -3
	75	226.1			224.8		
	90	225.8	225.5	2.3 -1	224.5	224.1	4.3 -1
	105	225.4	225.4	-2.0 -2	224.2	224.1	1.2 -1
	120	225.0	225.1	-2.1 -2	224.0	223.9	6.4 -2
	135	224.7	224.9	-2.4 -1	223.7	223.8	-1.1 -1
	150	224.3	224.2	1.4 -1	223.4	223.1	3.5 -1
	165	224.0	224.0	8.9 -3	223.1	223.0	1.0 -1
	180	223.7	223.7	8.2 -3	222.9	222.8	1.5 -1

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	$\beta°$	T_c °K	T_m °K	ΔT °K	T_c °K	T_m °K	ΔT °K
1.765	0	228.2	228.3	-4.0 -2	226.5	226.3	1.5 -1
	15	228.0	228.0	-3.5 -2	226.3	226.3	2.9 -2
	30	227.6	227.6	-4.4 -2	226.0	226.0	-6.9 -3
	45	227.2	227.1	1.1 -1	225.7	225.6	1.1 -1
	60	226.8	226.9	-1.1 -1	225.4	225.6	-2.1 -1
	75	226.4			225.1		
	90	226.0	225.8	1.5 -1	224.7	224.5	2.1 -1
	105	225.6	225.6	-4.1 -2	224.4	224.5	-1.0 -1
	120	225.2	225.3	-8.4 -2	224.1	224.2	-2.5 -2
	135	224.8	225.0	-2.2 -1	223.8	224.1	-2.4 -1
	150	224.4	224.2	1.5 -1	223.5	223.3	2.3 -1
	165	224.0	224.0	-6.2 -2	223.2	223.2	-9.7 -4
	180	223.7	223.7	2.7 -2	223.0	222.9	8.1 -2
1.890	0	228.7	228.6	9.9 -2	227.0	226.7	2.5 -1
	15	228.4	228.3	4.4 -2	226.8	226.6	1.3 -1
	30	227.9	228.1	-1.3 -1	226.4	226.4	-2.1 -2
	45	227.5	227.5	3.9 -2	226.1	226.0	1.2 -1
	60	227.1	227.2	-1.5 -1	225.7	225.9	-1.9 -1
	75	226.6			225.4		
	90	226.2	226.0	2.0 -1	225.1	224.9	1.8 -1
	105	225.7	225.7	8.8 -3	224.7	224.8	-6.9 -2
	120	225.3	225.3	2.8 -2	224.4	224.4	-5.5 -2
	135	224.9	225.1	-1.8 -1	224.0	224.3	-2.6 -1
	150	224.4	224.2	2.1 -1	223.7	223.5	2.1 -1
	165	224.0	224.1	-6.5 -2	223.3	223.4	-6.3 -2
	180	223.7	223.7	-1.9 -2	223.1	223.1	4.7 -2
2.014	0	229.1	228.8	2.9 -1	227.4	227.1	2.9 -1
	15	228.7	228.6	1.8 -1	227.2	227.0	1.8 -1
	30	228.3	228.3	-3.5 -4	226.8	226.8	2.4 -2
	45	227.8	227.7	1.4 -1	226.4	226.6	-1.3 -1
	60	227.3	227.4	-8.1 -2	226.1	226.3	-2.1 -1
	75	226.9			225.7		
	90	226.4	226.0	3.6 -1	225.3	225.2	1.6 -1
	105	225.9	225.8	1.1 -1	224.9	225.0	-1.5 -3
	120	225.4	225.3	1.2 -1	224.6	224.6	-3.0 -2
	135	225.0	225.1	-1.2 -1	224.2	224.5	-2.4 -1
	150	224.5	224.2	3.0 -1	223.8	223.6	2.5 -1
	165	224.0	224.0	1.7 -2	223.5	223.5	1.3 -3
	180	223.7	223.7	2.3 -2	223.2	223.2	4.4 -2

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

S/R	$\beta°$	OUTSIDE SURFACE T_c °K	OUTSIDE SURFACE T_m °K	OUTSIDE SURFACE ΔT °K		INSIDE SURFACE T_c °K	INSIDE SURFACE T_m °K	INSIDE SURFACE ΔT °K	
2.138	0	229.4	229.3	1.4	-1	227.8	227.7	1.1	-1
	15	229.1	229.0	8.1	-2	227.5	227.4	1.0	-1
	30	228.6	228.6	4.4	-2	227.2	227.2	-6.9	-2
	45	228.1	228.2	-5.6	-2	226.8	227.0	-1.9	-1
	60	227.6	227.8	-1.6	-1	226.4	226.5	-1.8	-1
	75	227.1				226.0			
	90	226.6	226.3	2.5	-1	225.6	225.4	1.7	-1
	105	226.1	226.1	-1.3	-2	225.2	225.2	-3.4	-2
	120	225.6	225.6	2.6	-2	224.8	224.7	1.1	-1
	135	225.1	225.3	-2.0	-1	224.4	224.6	-2.3	-1
	150	224.6	224.4	2.0	-1	224.0	223.7	3.0	-1
	165	224.1	224.2	-7.1	-2	223.6	223.5	4.0	-2
	180	223.7	223.8	-3.3	-2	223.3	223.1	1.8	-1
2.263	0	229.8	229.4	3.8	-1	228.1	228.0	1.0	-1
	15	229.5	229.1	3.7	-1	227.8	227.8	5.8	-2
	30	228.9	228.7	1.8	-1	227.4	227.4	-3.9	-2
	45	228.4	228.2	2.4	-1	227.0	227.0	2.9	-2
	60	227.9	228.2	-3.3	-1	226.6	226.7	-1.6	-1
	75	227.3				226.1			
	90	226.8	226.3	4.8	-1	225.7	225.5	2.2	-1
	105	226.3	226.1	2.0	-1	225.3	225.3	-2.4	-2
	120	225.7	225.5	2.6	-1	224.9	224.8	2.9	-2
	135	225.2	225.3	-5.8	-2	224.5	224.8	-3.3	-1
	150	224.7	224.2	4.6	-1	224.0	223.8	2.7	-1
	165	224.2	224.1	8.3	-2	223.6	223.7	-4.5	-2
	180	223.8	223.7	1.0	-1	223.3	223.2	1.3	-1
2.387	0	230.2	230.1	7.0	-2	228.3	228.2	1.5	-1
	15	229.8	229.8	-3.5	-2	228.0	228.0	5.2	-2
	30	229.2	227.7	1.4	0	227.6	229.2	-1.5	0
	45	228.6	228.7	-5.4	-3	227.1	227.2	-8.9	-3
	60	228.1	228.4	-2.7	-1	226.7	226.9	-2.1	-1
	75	227.5				226.3			
	90	227.0	226.7	2.0	-1	225.8	225.7	1.1	-1
	105	226.4	226.5	-7.2	-2	225.4	225.5	-8.6	-2
	120	225.8	226.0	-1.7	-1	225.0	225.0	-1.6	-4
	135	225.3	225.7	-4.3	-1	224.5	224.9	-3.7	-1
	150	224.7	224.6	7.8	-2	224.1	223.8	2.7	-1
	165	224.1	224.4	-2.4	-1	223.6	223.7	-4.4	-2
	180	223.8	224.0	-2.1	-1	223.3	223.2	1.2	-1

TABLE VI (CONT.)

α =6°, FIRST SET

S/R	β°	OUTSIDE SURFACE T_c°K	OUTSIDE SURFACE T_m°K	OUTSIDE SURFACE ΔT °K	INSIDE SURFACE T_c°K	INSIDE SURFACE T_m°K	INSIDE SURFACE ΔT °K
2.512	0	230.3	230.0	3.4 -1	228.4	228.3	1.0 -1
	15	229.9	229.8	1.6 -1	228.1	227.7	4.1 -1
	30	229.3	229.3	6.0 -2	227.7	227.8	-1.1 -1
	45	228.8	229.2	-3.9 -1	227.2	227.2	6.9 -2
	60	228.2	228.2	1.5 -2	226.8	226.9	-1.4 -1
	75	227.6			226.3		
	90	227.0	226.5	4.7 -1	225.9	225.6	2.4 -1
	105	226.4	226.3	1.1 -1	225.4	225.4	-1.1 -2
	120	225.8	225.7	6.2 -2	225.0	224.9	1.1 -1
	135	225.2	225.4	-2.0 -1	224.5	224.8	-2.9 -1
	150	224.6	224.3	3.7 -1	224.1	223.7	3.4 -1
	165	224.0	224.0	3.8 -2	223.6	223.6	7.9 -2
	180	223.6	223.6	1.3 -3	223.3	223.2	1.8 -1
2.636	0	230.4	229.9	4.0 -1	228.4	228.4	1.7 -2
	15	230.0	229.8	2.0 -1	228.1	227.8	3.7 -1
	30	229.3	229.2	1.4 -1	227.7	228.0	-2.9 -1
	45	228.7	229.1	-3.1 -1	227.2	227.2	8.8 -2
	60	228.1	228.2	-3.2 -2	226.8	227.1	-2.7 -1
	75	227.5			226.3		
	90	226.9	226.5	4.1 -1	225.9	225.8	1.2 -1
	105	226.3	226.2	9.8 -2	225.4	225.5	-5.4 -2
	120	225.7	225.6	1.3 -1	225.0	225.0	1.9 -2
	135	225.1	225.4	-2.9 -1	224.5	224.9	-3.4 -1
	150	224.5	224.2	2.9 -1	224.1	223.7	3.3 -1
	165	223.9	223.9	-2.8 -3	223.6	223.6	2.3 -2
	180	223.5	223.6	-1.0 -1	223.3	223.9	-5.3 -1
2.761	0	230.2	229.8	3.9 -1	228.3	228.4	1.0 -1
	15	229.8	229.7	8.6 -2	228.0	227.7	2.7 -1
	30	229.2	229.1	8.6 -2	227.5	228.0	-4.7 -1
	45	228.6	229.0	-3.6 -1	227.1	227.2	-6.7 -2
	60	228.0	228.0	-4.9 -2	226.6	226.9	-2.5 -1
	75	227.4			226.2		
	90	226.8	226.4	4.0 -1	225.8	225.7	7.5 -2
	105	226.2	226.1	5.9 -2	225.3	225.4	-9.6 -2
	120	225.6	225.6	-5.0 -2	224.9	224.9	-4.7 -2
	135	225.0	225.3	-3.6 -1	224.4	224.8	-4.2 -1
	150	224.4	224.1	2.5 -1	224.0	223.7	3.0 -1
	165	223.8	223.8	-6.0 -2	223.5	223.5	4.6 -2
	180	223.4	223.5	-1.3 -1	223.2	223.2	3.9 -2

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

S/R	$\beta°$	OUTSIDE SURFACE T_c °K	OUTSIDE SURFACE T_m °K	OUTSIDE SURFACE ΔT °K	INSIDE SURFACE T_c °K	INSIDE SURFACE T_m °K	INSIDE SURFACE ΔT °K
2.885	0	229.6	229.2	4.2 -1	227.7	227.5	2.7 -1
	15	229.2	229.2	7.5 -2	227.5	227.2	2.6 -1
	30	228.7	228.7	-8.3 -3	227.0	227.1	-7.0 -2
	45	228.1	228.2	-2.8 -2	226.6	226.8	-1.4 -1
	60	227.6	227.7	-1.3 -1	226.2	226.4	-1.8 -1
	75	227.0			225.8		
	90	226.4	226.2	2.4 -1	225.3	225.1	2.2 -1
	105	225.9	225.9	-2.4 -2	224.9	225.0	-2.8 -2
	120	225.3	225.4	-6.1 -2	224.5	224.5	-1.0 -2
	135	224.8	225.1	-3.6 -1	224.1	224.5	-4.3 -1
	150	224.2	223.9	2.5 -1	223.7	223.4	2.8 -1
	165	223.6	223.6	4.7 -2	223.2	223.1	9.6 -2
	180	223.3	223.3	-2.2 -2	223.0	222.9	3.5 -2
3.010	0	229.1	228.8	2.4 -1	227.3	226.9	3.5 -1
	15	228.7	228.6	1.4 -1	227.0	226.9	1.4 -1
	30	228.2	228.4	-1.5 -1	226.6	226.7	-3.1 -2
	45	227.7	227.7	9.8 -2	226.2	226.3	-3.3 -3
	60	227.3	227.4	-1.5 -1	225.9	226.0	-1.3 -1
	75	226.8			225.5		
	90	226.3	226.0	2.2 -1	225.1	224.9	1.6 -1
	105	225.8	225.8	-5.6 -2	224.7	224.7	-3.3 -2
	120	225.3	225.3	-1.2 -2	224.3	224.4	-4.4 -2
	135	224.8	225.2	-4.5 -1	223.9	224.5	-5.1 -1
	150	224.3	223.9	3.6 -1	223.6	223.3	2.5 -1
	165	223.8	223.8	1.6 -2	223.2	223.0	1.9 -1
	180	223.4	223.2	2.1 -1	222.9	222.8	1.7 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, SECOND SET

(P_0 = 2010 MM HG. ABS., T_0 = 322.0°K, RE_1/METER X 10^{-6} = 7.5)

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	β°	T_c°K	T_m°K	ΔT °K	T_c°K	T_m°K	ΔT °K
0.000	0	239.0	239.1	-5.4 -2	220.9	220.3	6.2 -1
	15	239.0			220.9		
	30	239.0			220.9		
	45	239.0	239.0	6.8 -2	220.9	220.6	3.1 -1
	60	239.0	238.5	5.3 -1	220.9	220.6	2.8 -1
	75	239.0	238.5	5.6 -1	220.9	220.9	6.8 -3
	90	239.0	239.0	6.8 -2	220.9	221.3	-3.9 -1
	105	239.0	239.1	-2.3 -2	220.9	221.1	-2.3 -1
	120	239.0	239.1	-1.1 -1	220.9	221.1	-2.3 -1
	135	239.0	239.8	-7.3 -1	220.9	220.8	1.3 -1
	150	239.0	239.1	-8.5 -2	220.9	220.9	-2.3 -2
	165	239.0	239.3	-2.7 -1	220.9	220.7	1.6 -1
	180	239.0	239.4	-3.9 -1	220.9	221.0	-8.5 -2
0.068	0	238.9	239.6	-7.3 -1			
	15	238.9					
	30	238.8					
	45	238.7	239.4	-6.1 -1			
	60	238.7	238.2	4.7 -1			
	75	238.6	238.1	5.3 -1			
	90	238.6	238.7	-1.6 -1			
	105	238.5	238.7	-1.6 -1			
	120	238.5	238.7	-2.1 -1			
	135	238.4	238.1	2.8 -1			
	150	238.4	238.4	-5.3 -2			
	165	238.3	238.4	-7.8 -2			
	180	238.3	238.5	-2.7 -1			
0.136	0	238.5	239.1	-6.2 -1	225.1	222.3	2.8 0
	15	238.4			224.7		
	30	238.2			224.2		
	45	238.0	238.5	-4.9 -1	223.7	222.3	1.3 0
	60	237.9	237.4	4.2 -1	223.1	221.9	1.2 0
	75	237.7	237.3	4.2 -1	222.6	221.8	7.6 -1
	90	237.6	237.8	-2.6 -1	222.1	222.5	-4.7 -1
	105	237.4	237.5	-1.1 -1	221.5	222.2	-6.9 -1
	120	237.2	237.4	-1.4 -1	221.0	222.3	-1.2 0
	135	237.1	236.8	3.0 -1	220.5	221.6	-1.1 0
	150	236.9	236.9	2.5 -2	220.0	221.7	-1.7 0
	165	236.8	236.9	-1.6 -1	219.4	221.8	-2.3 0
	180	236.7	237.1	-4.5 -1	219.1	222.1	-3.0 0

TABLE VI (CONT.)

$\alpha = 6°$, SECOND SET

S/R	$\beta°$	OUTSIDE SURFACE T_c °K	T_m °K	ΔT °K	INSIDE SURFACE T_c °K	T_m °K	ΔT °K
0.204	0	237.5	237.8	-3.5 -1			
	15	237.3					
	30	237.0					
	45	236.7	237.4	-6.0 -1			
	60	236.5	236.1	3.8 -1			
	75	236.2	235.7	5.1 -1			
	90	235.9	236.1	-1.7 -1			
	105	235.7	235.8	-7.8 -2			
	120	235.4	235.5	-1.3 -1			
	135	235.1	234.8	3.0 -1			
	150	234.9	234.9	9.0 -3			
	165	234.6	234.8	-2.2 -1			
	180	234.4	235.0	-5.9 -1			
0.305	0	234.3	234.5	-1.7 -1	222.2	221.9	2.6 -1
	15	234.0			222.1		
	30	233.7			221.9		
	45	233.3	233.8	-4.7 -1	221.8	221.7	9.7 -2
	60	233.0	232.5	4.6 -1	221.7	221.3	3.9 -1
	75	232.6	232.3	3.5 -1	221.5	221.1	4.1 -1
	90	232.3	232.6	-2.7 -1	221.4	222.2	-8.2 -1
	105	231.9	232.0	-1.0 -1	221.3	221.7	-4.6 -1
	120	231.6	231.7	-1.8 -1	221.1	221.6	-4.1 -1
	135	231.2	230.9	3.2 -1	221.0	220.5	4.6 -1
	150	230.9	230.7	1.2 -1	220.9	220.6	2.4 -1
	165	230.5	230.7	-2.2 -1	220.7	220.7	8.0 -2
	180	230.3	231.0	-7.4 -1	220.7	221.4	-7.4 -1
0.356	0	232.0	232.3	-2.2 -1			
	15	231.8					
	30	231.5					
	45	231.1	231.5	-3.7 -1			
	60	230.7	230.5	2.8 -1			
	75	230.4	230.0	4.1 -1			
	90	230.0	230.3	-3.1 -1			
	105	229.7	229.8	-1.4 -1			
	120	229.3	229.3	-3.8 -2			
	135	229.0	228.6	3.7 -1			
	150	228.6	228.5	4.7 -2			
	165	228.2	228.5	-2.4 -1			
	180	228.0	228.6	-5.7 -1			

TABLE VI (CONT.)

$\alpha = 6^\circ$, SECOND SET

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	β°	$T_c{}^\circ K$	$T_m{}^\circ K$	$\Delta T\,{}^\circ K$	$T_c{}^\circ K$	$T_m{}^\circ K$	$\Delta T\,{}^\circ K$
0.407	0	229.9	229.7	1.1 -1	221.0	220.7	3.1 -1
	15	229.6			220.9		
	30	229.3			220.7		
	45	228.9	229.8	-8.6 -1	220.5	220.4	1.5 -1
	60	228.6	228.1	4.7 -1	220.4	220.0	3.7 -1
	75	228.2	227.7	4.5 -1	220.2	220.5	-2.9 -1
	90	227.8	228.0	-1.7 -1	220.0	220.4	-4.4 -1
	105	227.5	227.5	-3.8 -2	219.8	219.9	-9.5 -2
	120	227.1	227.1	5.9 -3	219.6	219.8	-1.5 -1
	135	226.8	226.4	4.2 -1	219.5	219.1	4.1 -1
	150	226.4	226.3	1.5 -1	219.3	219.2	1.4 -1
	165	226.1	226.2	-1.0 -1	219.1	219.2	-9.7 -2
	180	225.8	226.5	-6.8 0	219.0	219.7	-6.7 -1
0.455	0	227.8	227.9	-1.4 -1			
	15	227.5	0				
	30	227.2					
	45	226.9	227.1	-2.6 -1			
	60	226.5	226.3	2.0 -1			
	75	226.2	225.8	3.6 -1			
	90	225.9	226.2	-3.0 -1			
	105	225.5	225.6	-8.5 -2			
	120	225.2	225.4	-1.7 -1			
	135	224.9	224.4	4.1 -1			
	150	224.5	224.5	5.6 -2			
	165	224.2	224.4	-2.1 -1			
	180	224.0	224.5	-4.9 -1			
0.520	0	225.2	225.3	-4.4 -2	219.5	219.2	3.6 -1
	15	225.0			219.4		
	30	224.7			219.2		
	45	224.4	224.8	-3.2 -1	219.1	218.9	1.7 -1
	60	224.1	223.9	2.7 -1	218.9	218.5	3.3 -1
	75	223.8	223.4	4.6 -1	218.7	219.1	-3.7 -1
	90	223.5	223.9	-3.5 -1	218.5	218.9	-3.7 -1
	105	223.2	223.4	-1.6 -1	218.3	218.3	-1.0 -2
	120	222.9	223.1	-1.2 -1	218.1	218.3	-1.3 -1
	135	222.6	222.4	2.8 -1	217.9	217.6	3.5 -1
	150	222.3	222.2	1.0 -1	217.8	217.6	1.4 -1
	165	222.0	222.2	-1.6 -1	217.6	217.7	-1.0 -1
	180	221.8	222.5	-6.6 -1	217.4	218.1	-6.9 -1

TABLE VI (CONT.)

$\alpha = 6°$, SECOND SET

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	β°	T_c °K	T_m °K	ΔT °K	T_c °K	T_m °K	ΔT °K
0.645	0	222.6	222.7	-1.6 -1	218.2	218.1	1.3 -1
	15	222.4			218.1		
	30	222.1			217.9		
	45	221.9	222.1	-2.7 -1	217.7	217.6	1.0 -1
	60	221.6	221.3	2.9 -1	217.6	217.5	1.1 -1
	75	221.3	220.9	4.6 -1	217.4	217.3	9.8 -2
	90	221.1	221.5	-4.4 -1	217.2	217.7	-4.7 -1
	105	220.8	221.0	-1.5 -1	217.1	217.1	-6.1 -2
	120	220.6	220.7	-1.3 -1	216.9	217.0	-8.0 -2
	135	220.3	220.0	2.7 -1	216.7	216.5	2.4 -1
	150	220.0	220.0	7.5 -2	216.5	216.4	1.2 -1
	165	219.8	219.9	-9.4 -2	216.4	216.4	-7.3 -2
	180	219.6	220.4	-8.5 -1	216.3	217.0	-7.7 -1
0.769	0	221.9	222.0	-1.1 -1	218.2	217.9	3.6 -1
	15	221.7			218.1		
	30	221.4			217.9		
	45	221.1	221.4	-2.3 -1	217.7	217.8	-1.0 -1
	60	220.9	220.7	1.6 -1	217.4	217.2	2.0 -1
	75	220.6	220.2	3.8 -1	217.2	217.0	2.3 -1
	90	220.3	220.7	-3.4 -1	217.0	217.4	-4.0 -1
	105	220.0	220.2	-1.3 -1	216.8	216.9	-9.5 -2
	120	219.8	219.9	-1.2 -1	216.6	216.7	-1.2 -1
	135	219.5	219.2	3.3 -1	216.4	216.0	3.4 -1
	150	219.2	219.1	1.5 -1	216.2	216.0	1.2 -1
	165	218.9	219.1	-1.2 -1	216.0	216.1	-1.7 -1
	180	218.8	219.5	-7.0 -1	215.8	216.6	-7.7 -1
0.894	0	221.6	221.6	3.0 -2	218.5	219.3	2.1 -1
	15	221.4			218.3		
	30	221.1			218.1		
	45	220.8	221.2	-3.6 -1	217.9	217.9	-1.2 -3
	60	220.5	220.2	3.8 -1	217.6	217.5	9.7 -2
	75	220.2	220.0	2.6 -1	217.4	217.3	1.1 -1
	90	219.9	220.3	-3.7 -1	217.1	217.5	-4.0 -1
	105	219.7	219.7	-5.4 -2	216.9	217.0	-6.0 -2
	120	219.4	219.3	1.5 -2	216.7	216.8	-1.4 -1
	135	219.1	218.8	3.0 -1	216.4	216.2	2.5 -1
	150	218.8	218.7	9.4 -2	216.2	216.2	-1.1 -2
	165	218.5	218.7	-2.6 -1	215.9	216.2	-2.5 -1
	180	218.3	219.0	-7.7 -1	215.8	216.7	-9.3 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, SECOND SET

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R	β°	T_c °K	T_m °K	ΔT °K	T_c °K	T_m °K	ΔT °K
1.018	0	221.7	221.7	-6.2 -3	218.8	218.7	1.6 -1
	15	221.5			218.6		
	30	221.2			218.4		
	45	220.9	221.2	-3.8 -1	218.1	218.2	-1.1 -1
	60	220.5	220.2	2.9 -1	217.8	217.8	5.0 -3
	75	220.2	219.8	3.7 -1	217.6	217.3	2.7 -1
	90	219.9	220.3	-4.1 -1	217.3	217.6	-2.6 -1
	105	219.6	219.6	-2.9 -2	217.1	217.1	-5.1 -3
	120	219.2	219.2	7.5 -2	216.8	216.8	-5.4 -2
	135	218.9	218.6	2.7 -1	216.5	216.2	3.5 -1
	150	218.6	218.5	3.7 -2	216.3	216.3	2.6 -4
	165	218.2	218.4	-1.9 -1	216.0	216.2	-2.0 -1
	180	218.0	218.8	-8.1 -1	215.8	216.7	-8.2 -1
1.143	0	222.0	221.9	9.0 -2	219.1	218.8	3.9 -1
	15	221.7			218.9		
	30	221.4			218.7		
	45	221.0	221.5	-4.1 -1	218.4	218.6	-2.2 -1
	60	220.7	220.4	2.7 -1	218.1	218.6	-4.9 -1
	75	220.3	220.0	3.8 -1	217.8	217.6	1.5 -1
	90	220.0	220.4	-4.3 -1	217.5	217.8	-3.2 -1
	105	219.6	219.6	-1.3 -2	217.2	217.2	3.5 -2
	120	219.3	219.3	3.4 -3	216.9	217.0	-6.8 -2
	135	218.9	218.6	3.2 -1	216.6	216.3	2.8 -1
	150	218.6	218.5	3.7 -2	216.3	216.3	6.2 -2
	165	218.2	218.4	-2.2 -1	216.1	216.3	-2.8 -1
	180	218.0	218.9	-8.8 -1	215.9	216.8	-9.4 -1
1.267	0	222.2	222.2	-5.2 -3	219.5	219.5	3.8 -2
	15	222.0			219.2		
	30	221.6			218.9		
	45	221.2	221.4	-2.1 -1	218.6	218.7	-5.3 -2
	60	220.8	220.6	2.7 -1	218.3	218.3	4.1 -2
	75	220.5	220.2	2.9 -1	218.0	218.0	6.5 -2
	90	220.1	220.5	-4.5 -1	217.7	217.9	-1.8 -1
	105	219.7	219.6	6.2 -2	217.4	217.4	-1.4 -2
	120	219.3	219.4	-3.9 -2	217.1	217.1	1.8 -2
	135	219.0	218.7	2.6 -1	216.8	216.5	2.9 -1
	150	218.6	218.5	3.7 -2	216.5	216.4	8.3 -2
	165	218.2	218.4	-2.4 -1	216.2	216.4	-2.5 -1
	180	217.9	218.8	-9.0 -1	216.0	217.0	-9.8 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, SECOND SET

S/R	β°	OUTSIDE SURFACE T_c °K	OUTSIDE SURFACE T_m °K	OUTSIDE SURFACE ΔT °K	INSIDE SURFACE T_c °K	INSIDE SURFACE T_m °K	INSIDE SURFACE ΔT °K
1.392	0	222.5	222.7	-1.8 -1	219.8	219.9	-9.0 -3
	15	222.2			219.6		
	30	221.8			219.2		
	45	221.4	221.7	-2.4 -1	218.9	218.9	-7.6 -4
	60	221.0	220.7	3.0 -1	218.6	218.6	1.3 -2
	75	220.6	220.3	3.0 -1	218.3	218.2	5.8 -2
	90	220.2	220.8	-5.3 -1	217.9	218.2	-2.6 -1
	105	219.8	219.9	-1.0 -1	217.6	217.6	2.5 -2
	120	219.4	219.5	-4.9 -2	217.3	217.3	-5.2 -2
	135	219.0	218.7	3.1 -1	217.0	216.7	2.7 -1
	150	218.6	218.6	3.7 -3	216.6	216.5	9.9 -2
	165	218.2	218.5	-3.0 -1	216.3	216.5	-2.2 -1
	180	217.9	218.8	-8.8 -1	216.1	217.0	-8.7 -1
1.516	0	222.8	223.0	-1.7 -1	220.1	220.2	-1.0 -1
	15	222.5			219.9		
	30	222.1			219.5		
	45	221.7	221.9	-2.6 -1	219.2	219.2	-2.1 -2
	60	221.2	221.0	2.3 -1	218.8	218.6	2.4 -1
	75	220.8	220.4	3.6 -1	218.5	218.5	-4.0 -2
	90	220.4	220.8	-4.1 -1	218.1	218.4	-2.3 -1
	105	219.9	219.9	5.0 -2	217.8	218.0	-2.4 -1
	120	219.5	219.4	1.4 -1	217.5	217.5	-5.7 -3
	135	219.1	218.7	3.5 -1	217.1	216.7	3.5 -1
	150	218.6	218.5	1.0 -1	216.8	216.6	1.2 -1
	165	218.2	218.4	-1.7 -1	216.4	216.6	-1.8 -1
	180	217.9	218.8	-8.2 -1	216.2	217.0	-8.5 -1
1.640	0	223.2	223.5	-2.7 -1	220.6	220.9	-3.3 -1
	15	222.9			220.3		
	30	222.4			219.9		
	45	221.9	222.2	-2.5 -1	219.5	219.6	-1.1 -1
	60	221.5	221.2	3.1 -1	219.1	219.2	-4.1 -2
	75	221.0	220.8	1.8 -1	218.8	218.7	9.4 -2
	90	220.5	221.0	-4.9 -1	218.4	218.7	-3.2 -1
	105	220.1	220.1	-7.1 -2	218.0	218.3	-3.7 -1
	120	219.6	219.6	-1.6 -2	217.6	217.6	-5.2 -2
	135	219.1	218.9	2.5 -1	217.2	216.9	2.9 -1
	150	218.7	218.7	-1.0 -4	216.8	216.7	9.5 -2
	165	218.2	218.5	-3.1 -1	216.4	216.6	-1.9 -1
	180	217.9	218.9	-9.9 -1	216.2	217.1	-9.2 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, SECOND SET

S/R	β°	OUTSIDE SURFACE T_c °K	T_m °K	ΔT °K	INSIDE SURFACE T_c °K	T_m °K	ΔT °K
1.765	0	223.6	223.7	-1.3 -1	221.0	221.3	-3.0 -1
	15	223.2			220.7		
	30	222.7			220.3		
	45	222.2	222.4	-2.2 -1	219.9	219.9	-2.1 -2
	60	221.7	221.6	9.3 -2	219.4	219.4	1.4 -2
	75	221.2	221.0	1.6 -1	219.0	218.9	1.4 -1
	90	220.7	221.1	-4.3 -1	218.6	218.8	-2.2 -1
	105	220.2	220.1	4.3 -2	218.2	218.3	-1.3 -1
	120	219.7	219.6	2.6 -2	217.7	217.7	4.0 -3
	135	219.2	218.9	2.8 -1	217.3	216.9	4.0 -1
	150	218.7	218.6	8.5 -2	216.9	216.7	1.6 -1
	165	218.1	218.4	-2.3 -1	216.5	216.7	-2.2 -1
	180	217.8	218.7	9.1 -1	216.2	217.1	-9.4 -1
1.890	0	223.9	223.9	-4.0 -3	221.4	221.4	4.7 -2
	15	223.6			221.1		
	30	223.0			220.7		
	45	222.5	222.6	-1.3 -1	220.2	220.2	1.0 -2
	60	221.9	221.8	1.4 -1	219.7	219.7	7.7 -3
	75	221.4	221.2	2.1 -1	219.3	219.3	5.1 -3
	90	220.8	221.1	-2.6 -1	218.8	219.1	-2.4 -1
	105	220.3	220.2	8.1 -2	218.3	218.3	6.1 -2
	120	219.7	219.6	1.2 -1	217.9	217.9	-3.3 -2
	135	219.2	218.8	3.4 -1	217.4	217.0	3.9 -1
	150	218.6	218.5	1.3 -1	217.0	216.8	1.1 -1
	165	218.1	218.4	-2.8 -1	216.5	216.8	-3.1 -1
	180	217.7	218.7	-9.2 -1	216.2	217.2	-1.0 0
2.014	0	224.2	224.2	1.3 -2	221.9	221.9	3.6 -2
	15	223.9			221.6		
	30	223.3			221.0		
	45	222.7	222.8	-1.5 -1	220.5	220.6	-5.3 -2
	60	222.1	221.9	1.9 -1	220.0	220.2	-1.2 -1
	75	221.5	221.3	2.5 -1	219.5	219.4	1.1 -1
	90	221.0	221.3	-3.5 -1	219.0	219.3	-2.6 -1
	105	220.4	220.3	8.1 -2	218.5	218.5	2.8 -2
	120	219.8	219.7	1.1 -1	218.0	218.0	-1.2 -2
	135	219.2	218.8	3.6 -1	217.5	217.2	2.8 -1
	150	218.6	218.5	1.2 -1	217.0	217.0	2.8 -2
	165	218.0	218.3	-2.7 -1	216.5	216.8	-3.2 -1
	180	217.7	218.7	-1.0 0	216.2	217.3	-1.1 0

TABLE VI (CONT.)

$\alpha = 6°$, SECOND SET

S/R	$\beta°$	OUTSIDE SURFACE $T_c°K$	OUTSIDE SURFACE $T_m°K$	OUTSIDE SURFACE $\Delta T°K$	INSIDE SURFACE $T_c°K$	INSIDE SURFACE $T_m°K$	INSIDE SURFACE $\Delta T°K$
2.138	0	224.6	224.6	-4.7 -2	222.3	222.2	5.1 -2
	15	224.1			221.9		
	30	223.5			221.4		
	45	222.9	223.2	-2.3 -1	220.8	220.9	-6.2 -2
	60	222.3	222.1	1.9 -1	220.3	220.4	-1.4 -1
	75	221.7	221.4	2.8 -1	219.8	219.6	1.8 -1
	90	221.1	221.6	-4.8 -1	219.2	219.4	-2.0 -1
	105	220.5	220.5	-1.8 -2	218.7	218.6	8.9 -2
	120	219.8	219.9	-4.7 -2	218.1	218.1	4.2 -2
	135	219.2	219.0	2.3 -1	217.6	217.2	4.2 -1
	150	218.6	218.5	1.2 -1	217.1	217.0	7.2 -2
	165	218.0	218.4	-4.4 -1	216.5	216.9	-4.0 -1
	180	217.6	218.7	-1.0 0	216.2	217.3	-1.1 0
2.263	0	224.9	224.8	1.9 -2	222.6	222.4	1.4 -1
	15	224.4			222.2		
	30	223.8			221.6		
	45	223.1	223.2	-1.0 -1	221.0	221.0	6.5 -2
	60	222.5	222.1	3.7 -1	220.5	220.4	1.6 -2
	75	221.8	221.6	2.4 -1	219.9	219.6	3.0 -1
	90	221.2	221.8	-6.6 -1	219.3	219.5	-1.4 -1
	105	220.5	220.5	3.2 -2	218.7	218.6	1.4 -1
	120	219.9	219.8	8.0 -2	218.2	218.1	9.8 -2
	135	219.2	219.1	1.4 -1	217.6	217.2	3.8 -1
	150	218.6	218.3	2.9 -1	217.0	216.9	9.3 -2
	165	217.9	218.3	-3.7 -1	216.5	216.8	-3.5 -1
	180	217.5	218.7	-1.2 0	216.1	217.1	-9.8 -1
2.387	0	225.0	225.0	4.0 -2	222.7	222.6	1.6 -1
	15	224.6			222.3		
	30	223.9			221.7		
	45	223.2	223.4	-2.1 -1	221.1	221.3	-1.7 -1
	60	222.5	222.4	8.7 -2	220.5	220.5	-7.5 -4
	75	221.9	221.7	1.9 -1	219.9	219.7	1.9 -1
	90	221.2	221.8	-6.0 -1	219.3	219.5	-1.8 -1
	105	220.5	220.5	3.4 -2	218.7	218.6	1.6 -1
	120	219.8	219.9	-5.9 -2	218.1	218.2	-3.8 -2
	135	219.2	219.1	5.4 -2	217.5	217.2	3.5 -1
	150	218.5	218.3	1.8 -1	216.9	216.9	3.2 -2
	165	217.8	218.2	-3.5 -1	216.3	216.8	-4.4 -1
	180	217.4	218.5	-1.0 0	215.9	217.1	-1.1 0

TABLE VI (CONT.)

$\alpha = 6°$, SECOND SET

		OUTSIDE SURFACE			INSIDE SURFACE		
S/R —	$\beta°$	T_c°K	T_m°K	ΔT °K	T_c°K	T_m°K	ΔT °K
2.512	0	225.0	224.9	5.4 -2	222.7	222.6	1.3 -1
	15	224.5			222.3		
	30	223.8			221.7		
	45	223.2	223.3	-1.8 -1	221.1	221.3	-1.7 -1
	60	222.5	222.4	1.2 -1	220.5	220.5	-1.5 -2
	75	221.8	221.5	2.7 -1	219.9	219.8	1.1 -1
	90	221.1	221.5	-3.7 -1	219.3	219.4	-1.6 -1
	105	220.4	220.4	2.3 -2	218.7	218.5	1.8 -1
	120	219.8	219.7	2.2 -2	218.0	218.0	6.2 -2
	135	219.1	218.8	2.9 -1	217.4	217.1	3.4 -1
	150	218.4	218.3	1.1 -1	216.8	216.8	3.9 -2
	165	217.7	218.0	-2.9 -1	216.2	216.6	-3.8 -1
	180	217.3	218.2	-9.2 -1	215.8	217.0	-1.1 0
2.636	0	224.8	224.7	3.9 -2	222.5	222.6	-8.8 -2
	15	224.3			222.1		
	30	223.6			221.5		
	45	223.0	223.1	-1.2 -1	220.9	221.0	-8.7 -2
	60	222.3	222.2	1.3 -1	220.3	220.4	-4.0 -2
	75	221.6	221.3	3.2 -1	219.7	219.6	1.2 -1
	90	221.0	221.3	-3.2 -1	219.1	219.4	-2.8 -1
	105	220.3	220.3	-7.0 -3	218.5	218.4	9.9 -2
	120	219.6	219.6	-2.2 -2	217.9	217.8	1.4 -1
	135	218.9	218.6	3.1 -1	217.3	217.0	3.4 -1
	150	218.3	218.1	1.3 -1	216.7	216.6	1.1 -1
	165	217.6	217.9	-2.9 -1	216.1	216.5	-4.2 -1
	180	217.1	218.1	-9.2 -1	215.7	216.9	-1.1 0
2.761	0	224.5	224.6	-1.2 -1	222.1	222.4	-2.5 -1
	15	224.0			221.8		
	30	223.4			221.2		
	45	222.7	223.0	-2.6 -1	220.6	220.8	-1.5 -1
	60	222.1	221.8	2.5 -1	220.0	219.8	2.6 -1
	75	221.4	221.2	2.4 -1	219.5	219.4	9.8 -2
	90	220.8	221.2	-3.9 -1	218.9	219.3	-4.1 -1
	105	220.1	220.2	-1.0 -1	218.3	218.3	3.2 -2
	120	219.5	219.6	-1.7 -1	217.7	217.8	-4.6 -2
	135	218.8	218.5	2.8 -1	217.2	216.8	3.6 -1
	150	218.2	218.0	1.2 -1	216.6	216.5	1.3 -1
	165	217.5	217.8	-2.4 -1	216.0	216.3	-2.8 -1
	180	217.1	218.0	-9.3 -1	215.7	216.7	-1.0 0

TABLE VI (CONT.)

$\alpha = 6°$, SECOND SET

S/R	$\beta°$	OUTSIDE SURFACE T_c°K	OUTSIDE SURFACE T_m°K	OUTSIDE SURFACE ΔT °K	INSIDE SURFACE T_c°K	INSIDE SURFACE T_m°K	INSIDE SURFACE ΔT °K
2.885	0	224.0	224.2	-1.9 -1	221.6	221.8	-1.9 -1
	15	223.6			221.2		
	30	223.0			220.7		
	45	222.4	222.7	-2.6 -1	220.2	220.4	-1.6 -1
	60	221.8	221.3	4.7 -1	219.7	219.3	3.2 -1
	75	221.2	220.9	2.6 -1	219.1	219.0	1.1 -1
	90	220.6	221.1	-5.3 -1	218.6	219.1	-4.3 -1
	105	219.9	220.1	-1.3 -1	218.1	218.1	-3.5 -2
	120	219.3	219.5	-1.3 -1	217.6	217.6	-2.4 -2
	135	218.7	218.3	3.5 -1	217.1	216.7	3.0 -1
	150	218.1	217.9	1.4 -1	216.5	216.4	1.5 -1
	165	217.5	217.6	-1.6 -1	216.0	216.3	-2.4 -1
	180	217.1	217.9	-8.1 -1	215.7	216.6	-9.2 -1
3.010	0	223.9	224.1	-1.6 -1	221.1	221.3	-1.6 -1
	15	223.5			220.8		
	30	222.9			220.4		
	45	222.3	222.6	-2.8 -1	219.9	220.1	-1.5 -1
	60	221.8	221.2	5.4 -1	219.5	219.1	3.6 -1
	75	221.2	220.9	2.7 -1	219.0	218.9	5.7 -2
	90	220.6	221.2	-6.2 -1	218.5	218.9	-4.0 -1
	105	220.0	220.3	-2.8 -1	218.1	218.1	-6.4 -2
	120	219.4	219.4	2.5 -2	217.6	217.5	5.8 -2
	135	218.8	218.4	4.1 -1	217.1	216.9	2.1 -1
	150	218.3	218.1	1.1 -1	216.7	216.6	5.9 -2
	165	217.7	217.9	-1.8 -1	216.2	216.3	-1.2 -1
	180	217.3	218.1	-7.9 -1	215.9	216.7	-7.7 -1

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

S/R = 0.305

CALCULATED TEMPERATURES, T_c

β°	OUTSIDE	THROUGH THE WALL			INSIDE
0	239.9	237.6	234.8	231.7	228.6
15	239.7	237.4	234.6	231.4	228.5
30	239.3	237.2	234.4	231.3	228.4
45	238.9	236.6	234.1	231.2	228.3
60	238.6	236.5	233.9	230.8	228.2
75	238.2	236.1	233.5	230.3	228.1
90	237.8	235.8	233.4	230.4	228.0
105	237.5	235.5	233.1	230.3	227.9
120	237.1	228.4	228.2	228.0	227.8
135	236.7	234.8	232.6	230.0	227.7
150	236.4	234.5	232.4	229.9	227.6
165	236.0	234.2	232.2	229.6	227.5
180	235.7	234.1	232.0	229.6	227.4

MEASURED TEMPERATURES, T_m

β°	OUTSIDE	THROUGH THE WALL			INSIDE
0	239.9	237.5	234.7	231.6	228.5
15	239.7	237.4	234.6	231.3	228.5
30	239.2	237.1	234.4	231.3	228.5
45	239.2	236.8	234.2	231.2	228.2
60	238.4	236.3	233.8	230.7	228.1
75					
90	237.8	235.8	233.3	230.4	227.9
105	237.4	235.4	233.1	230.3	227.9
120	337.4	235.5	233.1	230.4	228.1
135	237.0	235.1	232.9	230.2	228.0
150	236.2	234.3	232.2	229.7	227.5
165	235.8	234.0	232.0	229.4	227.3
180	235.8	234.1	232.0	229.5	227.2

DIFFERENCE ($T_c - T_m$)

β°	OUTSIDE	THROUGH THE WALL			INSIDE
0	7.0 -2	7.8 -2	8.8 -2	1.0 -1	1.1 -1
15	9.3 -3	8.6 -3	7.7 -3	6.7 -3	5.8 -3
30	1.6 -1	1.1 -1	4.4 -2	-3.4 -2	-1.0 -1
45	-2.0 -1	-1.2 -1	-4.4 -2	5.1 -2	1.4 -1
60	1.3 -1	1.2 -1	1.1 -1	9.5 -2	8.1 -2
75					
90	1.9 -2	3.0 -2	4.2 -2	5.8 -2	7.0 -2
105	7.2 -2	6.2 -2	4.9 -2	3.5 -2	2.2 -2
120	-2.9 -1	-7.1 0	-4.9 0	-2.4 0	-3.1 -1
135	-2.7 -1	-2.8 -2	-2.7 -1	-2.6 -1	-2.6 -1
150	1.8 -1	1.7 -1	1.6 -1	1.5 -1	1.4 -1
165	1.9 -1	2.0 -1	2.0 -1	2.0 -1	2.0 -1
180	9.8 -2	-3.6 -2	3.8 -2	1.2 -1	2.0 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, FIRST SET

S/R = 0.520

β°	OUTSIDE	THROUGH THE WALL			INSIDE
		CALCULATED TEMPERATURES, T_c			
0	231.1	230.3	229.1	227.8	226.3
15	230.9	230.2	229.0	227.7	226.3
30	230.6	229.8	228.7	227.3	226.1
45	230.3	229.5	228.6	227.2	226.0
60	230.0	229.4	228.4	227.0	225.8
75	229.7	229.2	228.1	226.9	225.7
90	229.4	228.8	227.9	226.6	225.5
105	229.1	228.6	227.7	226.5	225.4
120	228.8	228.1	227.4	226.2	225.2
135	228.5	228.0	226.7	226.1	225.1
150	228.2	227.6	226.8	225.8	224.9
165	227.9	227.3	226.7	226.7	224.8
180	227.7	227.2	226.4	225.7	224.7
		MEASURED TEMPERATURES, T_m			
0	231.2	230.4	229.2	227.8	226.4
15	230.9	230.1	229.0	227.7	226.2
30	230.8	229.9	228.8	227.5	226.2
45	230.4	229.6	228.7	227.3	226.0
60	229.9	229.3	228.4	227.0	225.8
75					
90	229.3	228.7	227.8	226.6	225.6
105	228.9	228.5	227.7	226.5	225.5
120	229.0	228.3	227.6	226.5	225.5
135	228.7	228.2	227.0	226.4	225.5
150	228.1	227.6	226.8	225.9	225.0
165	227.9	227.3	226.7	226.7	224.8
180	227.8	227.3	226.6	225.9	224.9
		DIFFERENCE ($T_c - T_m$)			
0	-6.1 -2	-5.3 -2	-4.0 -2	-2.5 -2	-8.9 -3
15	2.4 -2	2.3 -2	1.9 -2	1.6 -2	1.2 -2
30	-1.5 -2	-1.5 -1	-1.4 -1	-1.2 -1	-1.1 -1
45	-2.0 -2	-1.6 -2	-9.2 -3	-1.0 -5	8.4 -3
60	8.2 -2	7.2 -2	5.7 -2	3.4 -2	1.5 -2
75					
90	1.7 -1	1.3 -1	8.4 -2	7.8 -3	-5.6 -2
105	1.7 -1	1.3 -1	6.7 -2	-3.0 -2	-1.1 -1
120	-1.6 -1	-1.8 -1	-2.1 -1	-2.6 -1	-2.9 -1
135	-1.9 -1	-2.2 -1	-3.0 -1	-3.4 -1	-4.0 -1
150	8.0 -2	4.9 -2	3.5 -3	-4.9 -2	-9.7 -2
165	-1.5 -3	-8.8 -3	-1.7 -2	-1.6 -2	-4.0 -2
180	-8.4 -2	-1.1 -1	-1.5 -1	-1.8 -1	-2.3 -1

TABLE VI (CONT.)

$\alpha = 6°$, FIRST SET

S/R = 3.010

$\beta°$	OUTSIDE	THROUGH THE WALL			INSIDE
		CALCULATED TEMPERATURES, T_c			
0	229.1	228.9	228.3	227.7	227.3
15	228.7	228.7	228.0	227.5	227.0
30	228.2	228.1	227.6	227.1	226.6
45	227.7	227.4	227.1	226.7	226.2
60	227.3	227.2	226.6	226.3	225.9
75	226.8	226.7	226.2	225.9	225.5
90	226.3	226.2	225.8	225.5	225.1
105	225.8	225.5	225.2	224.9	224.7
120	225.3	225.2	224.9	224.6	224.3
135	224.8	224.7	224.4	224.2	223.9
150	224.3	224.1	223.9	223.8	223.6
165	223.8	223.6	223.4	223.3	223.2
180	223.4	223.3	223.2	223.0	222.9
		MEASURED TEMPERATURES, T_m			
0	228.8	228.6	228.0	227.4	226.9
15	228.6	228.5	227.8	227.4	226.9
30	228.4	228.3	227.7	227.2	226.7
45	227.7	227.4	227.1	226.7	226.3
60	227.4	227.3	226.8	226.4	226.0
75					
90	226.0	226.0	225.6	225.3	224.9
105	225.8	225.6	225.3	225.0	224.7
120	225.3	225.2	224.9	224.7	224.4
135	225.2	225.2	224.9	224.7	224.5
150	223.9	223.8	223.6	223.5	223.3
165	223.8	223.5	223.3	223.2	223.0
180	223.2	223.1	223.0	222.9	222.8
		DIFFERENCE $(T_c - T_m)$			
0	2.4 -1	2.6 -1	2.9 -1	3.2 -1	2.7 -1
15	1.4 -1	1.4 -1	1.4 -1	1.4 -1	2.6 -1
30	-1.5 -1	-1.4 -1	-1.0 -1	-6.7 -2	-7.0 -2
45	9.8 -2	7.6 -2	5.4 -2	2.5 -2	-1.4 -1
60	-1.5 -1	-1.5 -1	-1.4 -1	-1.4 -1	-1.8 -1
75					
90	2.2 -1	2.2 -1	1.9 -1	1.8 -1	2.2 -1
105	-5.6 -2	-5.2 -2	-4.5 -2	-3.8 -2	-2.8 -2
120	-1.2 -2	-1.5 -2	-2.7 -2	-3.4 -2	-1.0 -2
135	-4.5 -1	-4.6 -1	-4.8 -1	-4.9 -1	-4.3 -1
150	3.6 -1	3.4 -1	7.9 -1	2.8 -1	2.8 -1
165	1.6 -1	7.5 -2	1.1 -1	1.5 -1	9.6 -2
180	2.1 -1	2.0 -1	1.9 -1	1.8 -1	3.5 -2

TABLE VI (CONT.)

$\alpha = 6°$, SECOND SET

S/R = 0.305

CALCULATED TEMPERATURES, T_c

$\beta°$	OUTSIDE	THROUGH THE WALL			INSIDE
0	223.9	223.0	222.4	221.8	221.1
15	223.5	222.2	221.6	221.1	220.8
30	222.9	221.8	221.2	220.9	220.4
45	222.3	221.5	221.0	220.5	219.9
60	221.8	221.1	220.7	220.2	219.5
75	221.2	220.6	220.0	219.4	219.0
90	220.6	219.8	219.3	218.9	218.5
105	220.0	219.5	219.0	218.5	218.1
120	219.4	218.9	218.4	217.9	217.6
135	218.8	218.2	217.8	217.5	217.1
150	218.3	217.8	217.4	217.0	216.7
165	217.7	217.3	216.9	216.5	216.2
180	217.3	216.9	216.6	216.2	215.9

MEASURED TEMPERATURES, T_m

$\beta°$	OUTSIDE	THROUGH THE WALL			INSIDE
0	224.1	223.2	222.6	222.0	221.3
15					
30					
45	222.6	221.7	221.3	220.7	220.1
60	221.2	220.6	220.2	219.8	219.1
75	220.9	220.4	219.9	219.3	218.9
90	221.2	220.3	219.8	219.4	218.9
105	220.3	219.6	219.2	218.6	218.1
120	219.4	218.8	218.4	217.9	217.5
135	218.4	217.9	217.6	217.2	216.9
150	218.1	217.7	217.3	217.0	216.6
165	217.9	217.5	217.0	216.6	216.3
180	218.1	217.7	217.4	217.0	216.7

DIFFERENCE ($T_c - T_m$)

$\beta°$	OUTSIDE	THROUGH THE WALL			INSIDE
0	-1.6 -1	-1.6 -1	-1.6 -1	-1.6 -1	-1.6 -1
15					
30					
45	-2.8 -1	-2.3 -1	-2.0 -1	-1.8 -1	-1.5 -1
60	5.4 -1	4.9 -1	4.6 -1	4.3 -1	3.6 -1
75	2.7 -1	2.1 -1	1.5 -1	1.0 -1	5.7 -2
90	-6.2 -1	-5.4 -1	-4.8 -1	-4.4 -1	-4.0 -1
105	-2.8 -1	-2.2 -1	-1.7 -1	-1.0 -1	-6.4 -2
120	2.5 -2	3.6 -2	4.4 -2	5.3 -2	5.8 -2
135	4.1 -1	3.3 -1	2.9 -1	2.5 -1	2.1 -1
150	1.1 -1	1.0 -1	8.7 -2	7.3 -2	5.9 -2
165	-1.8 -1	-1.7 -1	-1.5 -1	-1.3 -1	-1.2 -1
180	-7.9 -1	-7.9 -1	-7.8 -1	-7.7 -1	-7.7 -1

TABLE VI (CONT.)

$\alpha = 6°$, SECOND SET

S/R = 0.520

$\beta°$	OUTSIDE	THROUGH THE WALL			INSIDE
		CALCULATED TEMPERATURES, T_c			
0	225.2	223.5	222.5	221.2	219.5
15	225.0	222.7	221.7	220.3	219.4
30	224.7	223.2	222.3	221.2	219.2
45	224.4	222.9	221.7	220.5	219.1
60	224.1	222.8	221.6	220.5	218.9
75	223.8	222.3	221.0	219.8	218.7
90	223.5	221.9	220.9	219.7	218.5
105	223.2	221.7	220.7	219.6	218.3
120	222.9	221.5	220.2	219.1	218.1
135	222.6	221.5	220.2	219.1	217.9
150	222.3	221.1	219.9	218.9	217.8
165	222.0	220.8	219.8	218.6	217.6
180	221.8	220.6	219.4	218.3	217.4
		MEASURED TEMPERATURES, T_m			
0	225.3	223.4	222.3	220.9	219.2
15					
30					
45	224.8	223.1	221.7	220.5	218.9
60	223.9	222.5	221.3	220.1	218.5
75	223.4	222.0	221.0	220.0	219.1
90	223.9	222.3	221.3	220.0	218.9
105	223.4	221.8	220.8	219.6	218.3
120	223.1	221.6	220.4	219.2	218.3
135	222.4	221.2	219.9	218.8	217.6
150	222.2	221.0	219.8	218.8	217.6
165	222.2	221.0	219.9	218.8	217.7
180	222.5	221.2	220.1	219.0	218.1
		DIFFERENCE ($T_c - T_m$)			
0	-4.4 -2	8.2 -2	1.5 -1	2.5 -1	3.6 -1
15					
30					
45	-3.2 -1	-1.8 -1	-6.5 -2	4.3 -1	1.7 -1
60	2.7 -1	2.8 -1	3.0 -1	3.1 -1	3.3 -1
75	4.6 -1	2.0 -1	8.0 -3	-2.0 -1	-3.7 -1
90	-3.5 -1	-3.7 -1	-3.7 -1	-3.7 -1	-3.7 -1
105	-1.6 -1	-1.1 -1	-8.6 -2	-5.0 -2	-1.0 -2
120	-1.2 -1	-1.2 -1	-1.3 -1	-1.3 -1	-1.3 -1
135	2.8 -1	3.0 -1	3.2 -1	3.3 -1	3.5 -1
150	1.0 -1	1.1 -1	1.2 -1	1.3 -1	1.4 -1
165	-1.6 -1	-1.5 -1	-1.3 -1	-1.2 -1	-1.0 -1
180	-6.6 -1	-6.8 -1	-6.8 -1	-6.8 -1	-6.9 -1

TABLE VI (CONT.)

$\alpha = 6^\circ$, SECOND SET

S/R = 3.010

β°	OUTSIDE	THROUGH THE WALL			INSIDE
		CALCULATED TEMPERATURES, T_c			
0	234.3	231.4	228.5	225.1	222.2
15	234.0	230.4	227.6	224.2	222.1
30	233.7	230.6	228.0	224.8	221.9
45	233.3	230.6	227.8	224.6	221.8
60	233.0	230.7	228.0	224.8	221.7
75	232.6	230.0	227.5	224.4	221.5
90	232.3	229.0	226.8	223.6	221.4
105	231.9	229.1	226.6	223.6	221.3
120	231.6	228.7	226.3	223.3	221.1
135	231.2	228.5	226.2	223.5	221.0
150	230.9	228.3	226.0	223.4	220.9
165	230.5	228.0	225.8	223.2	220.7
180	230.3	227.5	225.3	222.6	220.7
		MEASURED TEMPERATURES, T_m			
0	234.5	231.5	228.5	225.0	221.9
15					
30					
45	233.8	230.9	228.0	224.6	221.7
60	232.5	230.2	227.6	224.4	221.3
75	232.3	229.7	227.1	224.0	221.1
90	232.6	229.4	227.3	224.4	222.2
105	232.0	229.3	226.9	224.0	221.7
120	231.7	228.9	226.6	223.6	221.6
135	230.9	228.1	225.8	223.1	220.5
150	230.7	228.2	225.9	223.2	220.6
165	230.7	228.1	225.9	223.2	220.7
180	231.0	228.3	226.1	223.3	221.4
		DIFFERENCE ($T_c - T_m$)			
0	-1.7 -1	7.2 -2	-3.2 -2	-1.5 -1	2.6 -1
15					
30					
45	-4.7 -1	3.4 -1	2.0 -1	4.0 -2	9.7 -2
60	4.6 -1	-4.5 -1	-4.3 -1	-4.1 -1	3.9 -1
75	3.5 -1	-3.7 -1	-3.8 -1	-4.0 -1	4.1 -1
90	-2.7 -1	4.4 -1	5.5 -1	7.1 -1	-8.2 -1
105	-1.0 -1	2.0 -1	2.8 -1	3.8 -1	-4.6 -1
120	-1.8 -1	2.4 -1	2.9 -1	3.6 -1	-4.1 -1
135	3.2 -1	-3.6 -1	4.0 -1	-4.3 -1	4.6 -1
150	1.2 -1	-1.5 -1	-1.8 -1	-2.1 -1	2.4 -1
165	-2.2 -1	1.4 -1	8.1 -1	-4.0 -3	8.0 -2
180	-7.4 -1	7.4 -1	7.5 -1	7.5 -1	-7.4 -1

Table VII

Local Heat-Transfer Ratios on the Sphere-Cone Model, $\alpha = 0^{o}$

	$M_1 = 3.24$ $P_o = 1210$ mm Hg abs. $T_o = 363.3^{o}K$ $Re_1/m \times 10^{-6} = 8.8$	$M_1 = 4.84$ $P_o = 2213$ mm Hg abs. $T_o = 320.0^{o}K$ $Re_1/m \times 10^{-6} = 8.4$
S/R	Q/Q_o'	Q/Q_o'
0	1.000	1.000
0.027	1.181	1.001
0.082	1.238	1.039
0.136	1.152	0.900
0.193	1.016	0.837
0.249	0.925	0.757
0.304	0.787	0.690
0.356	0.681	0.486
0.407	0.532	0.364
0.464	0.371	0.226
0.520	0.522	0.231
0.645	0.265	0.160
0.769	0.237	0.153
0.894	0.269	0.126
1.018	0.188	0.116
1.143	0.220	0.120
1.267	0.227	0.109
1.392	0.182	0.096
1.516	0.182	0.102
1.641	0.216	0.105
1.765	0.241	0.092
1.890	0.250	0.077
2.014	0.161	0.071
2.138	0.139	0.071
2.263	0.136	0.076
2.387	0.126	0.090
2.512	0.174	0.077
2.636	0.137	0.070
2.761	0.150	0.073
2.885	0.137	0.071
3.010	0.345	0.089

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(P_o = 2233

β \ S/R	0	.027	.082	.136	.193	.249	.301	.356	.407	.464	.6
	Sphere										
0	1.020	1.004	.985	1.003	.988	.895	.745	.588	.416	.327	.1
15		1.001	.975	.978	.953	.860	.714	.560	.397	.312	.1
30		.999	.968	.957	.921	.828	.684	.535	.382	.310	.1
45		.999	.968	.945	.899	.805	.663	.515	.370	.294	.1
60		1.003	.973	.938	.881	.785	.644	.498	.358	.278	.1
75		1.006	.978	.932	.864	.767	.625	.481	.348	.265	.1
90		1.011	.985	.927	.847	.748	.607	.464	.340	.262	.1
105		1.015	.992	.922	.830	.729	.589	.447	.330	.250	.1
120		1.019	.998	.916	.813	.710	.571	.431	.324	.257	.1
135		1.022	1.002	.909	.796	.691	.552	.415	.316	.246	.1
150		1.022	1.003	.898	.774	.669	.531	.395	.304	.239	.0
165		1.020	.996	.876	.741	.636	.501	.368	.284	.223	.0
180		1.017	.985	.851	.707	.601	.470	.340	.267	.209	.0

Table VIII

al Heat-Transfer Ratios on the Sphere-Cone Model at M_1 = 4.84 and α = 6°

(3 mm Hg abs., T_o = 320°K, Re_1/meter × 10^{-6} = 8.5)

.645	.769	.894	1.018	1.143	1.267	1.392	1.516	1.641	1.765	1.890	2.01[illegible]	2.13
Q/Q_o' - Local Heat Flux Ratio												
											Cone	
.197	.173	.143	.143	.134	.119	.104	.108	.122	.131	.128	.128	.125
.179	.161	.134	.134	.122	.110	.096	.098	.113	.119	.116	.116	.113
.170	.152	.125	.125	.113	.102	.090	.092	.104	.110	.108	.104	.104
.158	.146	.122	.119	.108	.093	.087	.087	.098	.104	.102	.098	.096
.146	.140	.116	.113	.102	.090	.084	.084	.093	.096	.092	.090	.090
.134	.134	.113	.108	.096	.084	.078	.081	.090	.090	.087	.084	.081
.128	.128	.108	.102	.087	.081	.075	.078	.084	.084	.081	.075	.075
.116	.122	.104	.096	.081	.075	.072	.072	.078	.078	.072	.069	.066
.110	.116	[illegible]	[illegible]	.075	.069	.069	.069	.075	.072	.066	.060	.060
.102	.110	.096	.084	.069	.063	.063	.066	.060	.066	.060	.054	.051
.092	.104	.090	.078	.063	.060	.060	.063	.063	.060	.051	.045	.045
.078	.092	.084	.069	.054	.051	.054	.057	.054	.051	.042	.036	.033
.060	.081	.082	.057	.042	.039	.045	.048	.045	.039	.030	.024	.021

Table VIII

Local Heat-Transfer Ratios on the Sphere-Cone Model at M_1 = 4.84 and α = 6^{o}

(P_o = 2233 mm Hg abs., T_o = 320^{o}K, Re_1/meter × 10^{-6}

.193	.249	.304	.356	.407	.464	.645	.769	.894	1.018	1.143	1.267	1.392	1.
Q/Q_o' - Local Heat Flux Ratio													
Sphere													
.988	.895	.745	.588	.416	.327	.197	.173	.143	.143	.134	.119	.104	.10
.953	.860	.714	.560	.397	.312	.179	.161	.134	.134	.122	.110	.096	.0
.921	.828	.684	.535	.382	.310	.170	.152	.125	.125	.113	.102	.090	.09
.899	.805	.663	.515	.370	.294	.158	.146	.122	.119	.108	.093	.087	.0
.881	.785	.644	.498	.358	.278	.146	.140	.116	.113	.102	.090	.084	.0
.864	.767	.625	.481	.348	.265	.134	.134	.113	.108	.096	.084	.078	.0
.847	.748	.607	.464	.340	.262	.128	.128	.108	.102	.087	.081	.075	.07
.830	.729	.589	.447	.330	.250	.116	.122	.104	.096	.081	.075	.072	.07
.813	.710	.571	.4[illegible]1	.324	.257	.110	.116	.093	[illegible]	.075	.069	[illegible]	.0
.79[illegible]	.691	.552	.415	.316	.246	.102	.110	.096	.084	.069	.063	.063	.0
.774	.669	.531	.395	.304	.239	.092	.104	.090	.078	.063	.060	.060	.0
.741	.636	.501	.368	.284	.223	.078	.092	.084	.069	.054	.051	.054	.05
.707	.601	.470	.340	.267	.209	.060	.081	.082	.057	.042	.039	.045	.0

- 8.5)

1.516	1.641	1.765	1.890	2.014	2.138	2.263	2.387	2.512	2.636	2.761	2.885
Cond											
108	.122	.131	.128	.128	.125	.134	.146	.152	.155	.161	.140
098	.113	.119	.116	.116	.113	.122	.134	.137	.140	.146	.125
092	.104	.110	.108	.104	.104	.110	.122	.125	.125	.131	.113
087	.098	.104	.102	.098	.096	.102	.110	.113	.113	.119	.108
084	.096	.093	.092	.090	.090	.096	.102	.104	.102	.108	.090
081	.090	.090	.087	.084	.081	.087	.092	.092	.090	.092	.078
078	.084	.084	.081	.075	.075	.081	.084	.084	.078	.081	.069
072	.078	.078	.072	.069	.066	.072	.075	.072	.066	.069	.063
069	.075	.072	.066	.060	.060	.063	.066	.063	.054	.057	.048
066	.069	.066	.060	.054	.051	.057	.057	.051	.045	.045	.036
063	[illegible]	.060	.051	.045	.045	.048	.045	.042	.033	.030	.030
057	.054	.051	.042	.036	.033	.039	.033	.027	.018	.018	.021
048	.045	.039	.030	.024	.021	.027	.021	.015	.003	.003	.003

P_o = 2010 [illegible]

θ \ s/L	0	.027	.082	.136	.193	.249	.304	.356	.407	.464	.645
	Sphere										
0	1.034	1.001	.989	.988	.885	.840	.706	.638	.552	[illegible]	.248
15		1.001	.978	.977	.878	.818	.686	.613	.537	.474	.248
30		.996	.970	.958	.865	.799	.671	.584	.501	[illegible]	.222
45		.999	.968	.947	[illegible]	.788	.663	.565	.487	.391	.216
60		1.001	.958	.938	.858	.780	.657	.548	.471	.369	.210
75		1.003	.970	.931	.856	.771	.652	.533	.464	[illegible]	.213
90		1.007	.973	.925	.855	.764	.646	[illegible]	.451	.361	.210
105		1.016	.976	.918	.854	.755	.641	.501	.437	[illegible]	.204
120		1.013	.978	.911	.852	.747	.636	.484	.423	[illegible]	.199
135		1.015	.979	.903	.850	.738	.630	.466	.405	[illegible]	.190
150		1.014	.976	.891	.845	.728	.622	.449	.391	[illegible]	.187
165		1.012	.968	.872	.832	.709	.607	.423	.370	[illegible]	.178
180		1.009	.957	.852	.816	.687	.588	.397	.350	[illegible]	.167

Table VIII (con't)

$M_1 = 4.84$ and $\alpha = 6^{\circ}$

[illegible] Hg abs., T_o = 322°K, [illegible] x 10^{-6} = 7.0)

.769	.894	1.018	1.143	1.267	1.392	1.516	1.641	1.765	1.889	2.014	2.138	2.
— Q/Q_o — Local Heat Flux Ratio —												
Cone												
.230	.207	.199	.199	.193	.193	.190	.187	.184	.179	.173	.170	.
.219	.196	.184	.184	.181	.178	.178	.176	.173	.16[illegible]	[illegible]	.155	.
.207	.187	.176	.173	.173	.170	.167	.167	.164	.158	.153	.147	.
.204	.181	.173	.173	.167	.164	.16[illegible]	.161	.158	.153	.147	.141	.
.201	.178	.167	.167	.161	.161	.158	.155	.153	.147	.141	.13[illegible]	.
.196	.176	.164	.164	.158	.155	.153	.150	.147	.141	[illegible]	.132	.[illegible]
.193	.170	.161	.158	.153	.150	.147	.144	.141	.141	.1[illegible]3	.132	.[illegible]
.190	.167	.155	.155	.150	.144	.141	.138	.135	.130	.1[illegible]0	.121	.[illegible]
.187	.164	.153	.153	.144	.138	.135	.132	.130	.124	.118	.115	.[illegible]
.181	.158	.147	.147	.138	.135	.130	.130	.124	.118	.115	.112	.[illegible]
.178	.155	.144	.141	.135	.130	.127	.124	.118	.112	[illegible]	.107	.[illegible]
.170	.147	.135	.135	.127	.121	.118	.115	.109	.101	[illegible]	[illegible]	.[illegible]
.158	.135	.124	.121	.115	.107	.104	.101	.095	.092	.0[illegible]	.0[illegible]5	.[illegible]

Table VIII (con't)

M_1 = 4.84 and α = 6^o

P_o = 2010 mm Hg abs., T_o = 322°K, [illegible] × 10^{-6} .

49	.304	.356	.407	.464	.645	.769	.894	1.018	1.143	1.267	1.[illegible]	1.51
							Q/Q_o' – Local Heat Flux Ratio					
40	.706	.638	.552	.4[illegible]	.248	.230	.207	.199	.199	.193	.193	.19
18	.686	.613	.537	.474	.248	.219	.196	.184	.184	.181	.178	.17
99	.671	.584	.501	.4[illegible]	.222	.207	.187	.176	.178	.173	.170	.16
88	.663	.565	.487	.391	.216	.204	.181	.173	.173	.167	.164	.16
80	.657	.548	.471	.369	.210	.201	.178	.167	.167	.164	.161	.15
71	.652	.533	.464	.355	.213	.196	.176	.164	.164	.158	.155	.15
64	.646	.517	.451	.331	.210	.193	.170	.161	.158	.153	.150	.14
55	.641	.501	.437	[illegible]	.204	.190	.167	.155	.155	.150	.144	.14
47	.636	.484	.423	[illegible]	.199	.187	.164	.153	.152	.144	.138	.13
38	.630	.466	.405	[illegible]	.190	.181	.158	.147	.147	.138	.135	.13
28	.622	.448	.391	[illegible]	.187	.178	.155	.144	.141	.135	.130	.12
09	.607	.423	.370	[illegible]	.178	.170	.147	.135	.135	.127	.121	.11
37	.588	.397	.350	[illegible]	.167	.158	.135	.124	.121	.115	.107	.10

B

$0^{-6} = 7.6)$

1.516	1.641	1.765	1.890	2.014	2.138	2.263	2.387	2.512	2.636	2.761	2.885
Cone											
.190	.187	.184	.178	.173	.170	.176	.173	.173	.170	.176	.178
.178	.176	.173	.167	.161	.155	.161	.161	.161	.158	.167	.181
.167	.167	.164	.158	.153	.147	.153	.153	.153	.150	.158	.167
.164	.161	.158	.153	.147	.141	.147	.147	.147	.144	.150	.153
.158	.155	.153	.147	.141	.138	.141	.141	.141	.138	.144	.141
.153	.150	.147	.141	.138	.132	.135	.135	.135	.135	.138	.135
.147	.144	.141	.141	.133	.132	.130	.130	.130	.130	.132	.135
.141	.138	.135	.130	.130	.121	.124	.124	.124	.124	.124	.121
.135	.132	.130	.124	.118	.115	.118	.118	.118	.118	.118	.118
.130	.130	.124	.118	.115	.112	.112	.112	.115	.112	.112	.112
.127	.124	.118	.112	.109	.107	.107	.107	.109	.107	.107	.101
.118	.115	.109	.104	.101	.098	.098	.098	.101	.098	.098	.093
.104	.101	.095	.092	.086	.086	.086	.086	.089	.086	.086	.083

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